Western Refining

St. Paul Park

CERTIFIED MAIL: 9171 9690 0935 0089 4336 04

January 19, 2017

Air Quality Tracking Coordinator
Compliance Determination Unit
Air Quality Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194

RE: Fourth Quarter 2016 Excess Emission and CEM Report
St. Paul Park Refining Co. LLC
AQD Facility ID No: 16300003
AQD File No: 0203 (AI ID 447)

Dear Sir/Madam:

St. Paul Park Refining Co. LLC is providing the Minnesota Pollution Control Agency (MPCA) with the Excess Emission and Continuous Emissions Monitor (CEM) Downtime Report for 4th Quarter 2016.

Please contact Shannon Lian at (651) 769-6766 if you have any questions or if you need additional information.

Respectfully,

Richard Hastings
Vice President and Refinery Manager
St. Paul Park Refining Co. LLC

Enclosures

cc: Patrick Foley (EPA) w/report – CERTIFIED MAIL: 9171 9690 0935 0089 4336 11
USEPA c/o Matrix w/report – CERTIFIED MAIL: 9171 9690 0935 089 4336 28
Ms. Jennifer Carlson (MPCA) w/report – CERTIFIED MAIL: 9171 9690 0935 089 4336 35
Ms. Cheryl Newton (EPA) w/report – CERTIFIED MAIL: 9171 9690 0935 0089 4336 42

Fourth Quarter 2016
Excess Emission and CEM Report

St. Paul Park Refining Co. LLC

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Section 1

Report Certification

Certification for Fourth Quarter 2016 CEM Excess Emission and CEM Downtime Report

As of September15, 2016, Western Refining Terminals, LLC, assumed ownership of certain assets associated with the St. Paul Park Refinery. This change in ownership is reflected in an administrative amendment submitted to MPCA originally on September 21, 2016 with a revised submittal provided on November 15, 2016. A separate certification is provided by Western Refining Terminals, LLC as co-permittee for those assets.

This section of the report serves as the St. Paul Park Refining Co. LLC written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

St. Paul Park Refining Co. LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

St. Paul Park Refining Co. LLC

Richard Hastings, Vice President and Refinery Manager

01/19/2017
Date

Certification for Fourth Quarter 2016 CEM Excess Emission and CEM Downtime Report – VRU (EQUI028) and VCR (COM028)

As of September15, 2016, Western Refining Terminals, LLC, assumed ownership of certain assets associated with the St. Paul Park Refinery. This change in ownership is reflected in an administrative amendment submitted to MPCA originally on September 21, 2016 with a revised submittal provided on November 15, 2016 This change in ownership is reflected in an administrative amendment submitted to MPCA on November 15, 2016. Pursuant to that amendment and the associated change in ownership, this certification is provided by Western Refining Terminals, LLC as co-permittee for those assets now owned and operated by Western Refining Terminals, LLC.

This section of the report serves as the Western Refining Terminals, LLC written certification of the information contained within this report. This certification is comprehensive of the entire report and replaces the need for certification of each of the Excess Emissions and CEM Reporting Forms.

Western Refining Terminals, LLC

Based on the information and belief formed after reasonable inquiry, the statements and information in this report are true, accurate, and complete.

Western Refining Terminals, LLC

Matthew L. Yoder, Senior Vice President Operations

1/23/17
Date

Section 2

Report Summary

Excess Emissions Summary
Fourth Quarter 2016

Excess Emissions Summary

Incident A (43360) – FCC CO Exceedance during Start-up of the DDS Unit and Shutdown of the HDH Unit

On October 1, 2016, during the start-up of the DDS Unit and preparation for the shutdown of the HDH Unit, changes in the composition of available FCC feed resulted in an upset of the FCC Unit and three, 1-hr exceedances of the CO 500 ppm limit due to an unexpected drop in the dense bed temperature.

Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,332.0 ppm (1.5 times the daily span calibration gas concentration of 888.0 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table.

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	O_2 Rates, volume %
1	10/01/16, 11:00	506	426	$\geq$ 1.0
2	10/01/16, 12:00	1644	1060	$\geq$ 1.0
3	10/01/16, 13:00	901	606	$\geq$ 1.0

Incident B (43374) – FCC CO Exceedance Resulting from Unit Malfunction

On October 5, 2016, while attempting to take the FCC Main Blower offline for maintenance, the main discharge valve was not closed initially and the check valve was relied upon for positive shutoff. The Main Blower's discharge pressure dropped below the Auxiliary Blower's pressure allowing for air flow out of the Main blow-off vent, rather than to the Regenerator. The FCC Regenerator received insufficient oxygen, which led to incomplete combustion of catalyst carbon burn and flue stack CO levels that exceeded the hourly CO limit of 500 ppm. To prevent recurrence, additional clarity was added to the operating procedure to ensure the discharge pressure on the Main Blower is higher the Auxiliary Blower. A verification and recording of the blower discharge pressure is also required.

Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,332.0 ppm (1.5 times the daily span calibration gas concentration of 888.0 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table.

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	O_2 Rates, volume %
1	10/05/16, 0:00	762	517	$\geq$ 1.0

Incident C (43451) – Flare H2S Exceedance from Valve Malfunction

On November 4, 2016, while blocking in the hydrogen to the DU Unit, a double-block valve in the HDH Unit leaked, caused pressurization of a line in the DU Unit and relief of a PSV to the flare. Emergency relief of the PSV to the flare resulted in three exceedances of the flare 3-hr rolling H_2S average.

SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	11/04/16, 0:00	666
2	11/04/16, 2:00	667
3	11/04/16, 3:00	655

Incident D (43475/43476) – Visible Emissions from the Flare during Alky Unit Shutdown/Start-up

Two valves supply steam to the flare (i.e., main valve and steam trim valve). To prepare for planned work on the flare steam trim valve, the valve was isolated and drained on November 16, 2016. During an emergency shutdown of the Alky Unit on November 16, 2016 to repair a leaking valve, at 6:40 am the flare smoked. Realizing the steam from the trim valve was unavailable, the Console Operator manually adjusted the main flare steam supply to stop the smoking. The event resulted in visible emissions for sixteen (16) minutes in a two-hour period.

During start-up of the Alky Unit on November 16, 2016 at 15:17, the alky iso-stripper relieved to the flare from a process safety valve due to over-pressurization. This event periodically impacted the flare for approximately 2.5 hours until the process stabilized. This event subsequently resulted in visible emissions > 5 min in 2 consecutive hours (total of approximately 7 minutes). Complications with the flare steam flow meter were also noted during this time period.

SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Incident E (43491) – Flare H2S Exceedance During #2 Reformer Start-up

An emergency shutdown of the #2 Reformer occurred on November 5, 2016 due to a tube leak on the 36B1 heater. During start-up of the #2 Reformer Unit on November 19, 2016 and sulfiding of the Reformer Guard Case Reactor (i.e., part of the start-up process), compressor recycle gas was sent to the flare. Although the H_2S scavenger chemical to the flare was increased, there were three exceedances of the flare H_2S 3-hr limit. SO_2 Emissions during this period were < 500 lbs/24-hr period.

SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	11/19/16 13:00	219
2	11/19/16 14:00	236
3	11/19/16 15:00	207

Incident F (43496) – Flare H2S Exceedance

On November 23, 2016, an exceedance of the 162 ppm H_2S 3-hour rolling average occurred. The rate of flare H_2S chemical scavenger was increased and existing procedures for determining sources of high flare flow were used. No abnormal flaring was documented from the HDH, DDS or #1 Crude Units (i.e., high H_2S units). Although a detailed investigation was completed, a source of high H_2S was not identified. A troubleshooting guide for high H_2S events is being developed.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	11/23/16, 12:00	231
2	11/23/16, 13:00	214
3	11/23/16, 14:00	171

Incident G (43541) – Flare H2S Exceedance Due to Equipment Malfunction, DU Stripper Over-pressurization and Lifting of PSV

On December 18, 2016, the DU Stripper Overhead pressure transmitter froze, causing the PSV (29-PSV-6) to lift to the flare. Operators thawed the pressure transmitter and the H_2S scavenger chemical injection to the flare was increased. There were three exceedances of the flare 3-hr H_2S limit.

SPPRC believes these periods to be exempt under SSM provisions of the regulations and is providing the data for informational purposes only.

Periods Over 162 ppm H_2S, 3-hour Avg.	Date and End Time	Measured 3-Hour Avg. (ppm H_2S)
1	12/18/16, 06:00	496
2	12/18/16, 07:00	609
3	12/18/16, 08:00	627

Incident H (43542/43543) – FCC CO Exceedance Due to Equipment Malfunction

On December 18, 2016, the Elliott compressor tripped multiple times, due to low inlet air temperature. The unit was stabilized and preparations were made to complete freeing up the air lances to the catalyst cooler per the procedure. Starting on night shift of December 18th, the operators were working to unplug the catalyst cooler and reestablish air flow. Multiple attempts were made to break free the air lances and establish circulation in the catalyst cooler. Once unplugged, the actions resulted not only unplugging the connection the operators were working on, but also the other lance; causing high volumes of catalyst to be circulated back into the regenerator. This catalyst that had been stagnant in the catalyst cooler increased the amount of coke that was available within the regenerator and caused all of the oxygen being fed to the regenerator to be consumed. With oxygen concentrations falling, CO generation occurred. The board operator increased both blower air and enriched oxygen air flow, while cutting unit rate, quickly restoring combustion and CO generation back to normal levels. The catalyst cooler air flow was also able to be maintained and lances free of further plugging.

Since measured CO data points are not verifiable or accurate when 50% greater than the high calibration gas concentration, a value of 1,332.0 ppm (1.5 times the daily span calibration gas concentration of 888.0 ppm CO) was substituted for all greater data points. The recalculated and verifiable value is provided in the last column of the table.

Periods Over 500 ppm CO @ 0% O_2 1-hour Avg.	Date and End Time	Measured 1-Hour Avg. (ppm CO)	Verified 1-hour Avg. (ppm CO)	O_2 Rates, volume %
1	12/18/16, 23:00	561	380	≥ 1.0

SARA Reportable Release Summary

There were no SARA reportable releases during 4th quarter 2016.

SBC/BWON Vent Gas System

During the 4th quarter of 2016, BWON vent gasses were bypassed around the WWTP TO and associated temperature monitor 6.1% percent of the time or 134 hours. The WWTP TO was shut down on 1/11/17 for troubleshooting and investigation by a team consisting of representatives from Operations, Instrumentation, and Technical Services. The cause for the multiple trips in 4QTR2016 was not readily identified. An external 3rd party will be used to continue troubleshooting efforts related to the TO, identify the cause of the trips, and recommend corrective actions.

With the upgrade of the WWTP in July 2014, SBC's are no longer in-use.

Monitor Bypass Summary

There were no monitor bypasses during the 4th quarter 2016.

SRU Bypass Summary

There were no SRU bypasses during the 4th quarter 2016.

Section 3

Excess Emissions and CEM Reporting Forms

4th Quarter 2016 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
Refinery Fuel Gas Drum (H2S ppmv, 3-hr rolling ave)	0.00%	3.85%
Refinery Fuel Gas Drum (H2S ppmv, 365-day rolling ave)	0.00%	3.85%
Heater 28-B-1 (lb SO2/mmbtu, 3 hr average)	0.00%	---
Heater 28-B-1 (lb SO2/hr, 3 hr average)	0.00%	---
Heater 28-B-1 fuel gas flow meter	---	0.00%
Heater 28-B-1 fuel oil flow meter	---	0.00%
FCC Opacity	0.00%	0.50%
FCC CO (ppm)	0.23%	0.50%
FCC NOx (ppm - 365 day rolling average)	0.00%	0.50%
FCC NOx (ppm - 7 day rolling average)	0.00%	0.50%
FCC SO2 (ppm - 7 day rolling average)	0.00%	0.50%
FCC SO2 (ppm - 365 day rolling average)	0.00%	0.50%
FCC SO2 (lb/hr)	0.00%	0.50%
FCC SOx (lb/1000 lb coke burn)	0.00%	0.50%
Heater 5-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 5-B-1 fuel gas flow meter	---	0.00%
Heater 5-B-1 fuel oil flow meter	---	0.00%
Heater 2-B-3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	0.00%
Heater 2-B-3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 2-B-3 (lbs NOx/mmbtu, 3-hr rolling ave)	0.00%	0.29%
Heater 2-B-3 (lbs NOx/mmbtu, 12-Month rolling ave)	0.00%	0.29%
Heater 2-B-3 NSP fuel gas flow meter	---	0.00%
Heater 2-B-3 Fuel Gas flow meter	---	0.00%
Heater 2-B-3 NOX/O2 CEM	---	0.29%
Heater 1-B-5 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-5 fuel gas flow meter	---	0.00%
Heater 1-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 1-B-7 fuel gas flow meter	---	0.00%
Heater 1-B-7 fuel oil flow meter	---	0.00%
Heater 29-B-1/29-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 29-B-1/29-B-2 fuel gas flow meter	---	0.00%
Heater 3-B-1/2/3 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-1/2/3 fuel gas flow meter	---	0.00%
Heater 3-B-4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-4 fuel gas flow meter	---	0.00%
Heater 3-B-7 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-7 fuel gas flow meter	---	0.00%
Heater 3-B-8 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 3-B-8 fuel gas flow meter	---	0.00%
Heater 34-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-1 fuel gas flow meter	---	0.00%
Heater 34-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 34-B-2 fuel gas flow meter	---	0.00%
Heater 32-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 32-B-1 fuel gas flow meter	---	3.26%
Heater 32-B-1 (NOx lb/mmbtu, 365 day rolling ave)	0.00%	3.26%
Heater 10-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 10-B-1 fuel gas flow meter	---	0.00%
Heater 10-B-1 fuel oil flow meter	---	0.00%

4th Quarter 2016 - Percent Excess Emissions and CEM Downtime Summary

Source Description	Excess Emission Percent Time Exceeded This Quarter (1)	Continuous Monitor Downtime Percent This Quarter (2,3)
#2 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.06%
#2 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.06%
#2 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.06%
#2 SRU/SCOT bypasses	0.00%	---
Heater 36-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-1 fuel gas flow meter	---	0.00%
Heater 36-B-2, 3, and 4 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-2, 3, and 4 fuel gas flow meter	---	0.00%
Heater 36-B-6E (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6E fuel gas flow meter	---	0.00%
Heater 36-B-6W (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 36-B-6W fuel gas flow meter	---	0.00%
Heater 37-B-1 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-1 fuel gas flow meter	---	0.00%
Heater 37-B-2 (lbs SO2/hr, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 (lbs SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heater 37-B-2 fuel gas flow meter	---	0.00%
Heaters 38-B-1, 38-B-2 (lb SO2/hr, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 (lb SO2/mmbtu, 3-hr rolling ave)	0.00%	---
Heaters 38-B-1, 38-B-2 NSP Gas flow meter	---	0.00%
Heaters 38-B-1, 38-B-2 PSA fuel gas flow meter	---	0.00%
Light oil loadrack VRU (TOC ppmv, 6-hr average)	0.00%	0.00%
Light oil loadrack- Permanent VCU (Limit = Temp ≥215 deg F, 3-hr rolling ave)	0.00%	0.00%
Refinery flare (presence of pilots)	0.00%	0.11%
Refinery flare (MMSCF/24-hours)	0.00%	0.00%
Refinery flare - SARA Reportable emissions - SO2	0.00%	1.00%
Refinery flare - SARA Reportable emissions - NOx	0.00%	---
Refinery flare - H2S (3-hour rolling average)	0.54%	4.98%
W.W.T.P. SBC Offgas (H2S ppmv, 365-day rolling ave)	0.00%	0.00%
W.W.T.P. Thermal Oxidizer, SBC Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.00%
W.W.T.P. Thermal Oxidizer, NESHAP Offgas (Temp Deg. F, 3-hr rolling ave)	0.00%	0.00%
#3 SRU/SCOT SO2/O2 (ppmv, 12-hr ave)	0.00%	0.14%
#3 SRU/SCOT SO2/O2 (lbs/hr, 1-hr ave)	0.00%	0.14%
#3 SRU/SCOT SO2/O2 (lbs/hr, 3-hr rolling ave)	0.00%	0.14%
#3 SRU/SCOT Bypasses	0.00%	---
NP VEPR Phase 1 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
NP VEPR Phase 2 - Catalytic AB w/Heat Exchg (Temp, 3-hr rolling ave)	0.00%	0.00%
Boiler 7 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.14%
Boiler 7 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 7 fuel gas flow meter	---	0.00%
Boiler 8 NOx (lb/MMBtu, 30 day rolling ave)	0.00%	0.15%
Boiler 8 SO2 (lb/MMBtu, 3-hr rolling ave)	0.00%	---
Boiler 8 fuel gas flow meter	---	0.00%
Heater 8-B-1 (lb SO2/mmbtu, 3-hr average)	0.00%	---
Heater 8-B-1 (lb SO2/hr, 3-hr average)	0.00%	---
Heater 8-B-1 (ppmvd, 30-day average)	0.00%	0.23%
Heater 8-B-1 fuel gas flow meter	---	0.00%
GP 032 CO (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	0.14%
Boiler 8 CO (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	0.15%
GP 032 NOx (TPY, Combined 12-month Rolling Sum)	0.00%	---
Boiler 7 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 8)	---	0.14%
Boiler 8 NOx (TPY, Combined 12-month Rolling Sum w/ Boiler 7)	---	0.15%

Notes:

(1) 0.00% indicates No Excess Emissions.

(2) Monitor Downtime includes daily calibration checks for opacity.

(3) 0.00% indicates No Monitor Downtime.

Appendix A

AMP Monitoring Data

AMP Data - Sample Point #1 - C3/C4 Splitter Overhead (Unit 5008, Code 205) -4th Quarter 2016

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	Total sulfur-Antek (ppmw)	Instrument ID	Vol H2S	Vol LPG	H2S Conc (ppmv)
FCC	C3/C4 SPLTR OVHD	S2132019.D	10/6/2016	4:30	1.7	Antek#2	1.2	575,259.115	2.1
FCC	C3/C4 SPLTR OVHD	S2132301.D	10/7/2016	4:30	0.5	Antek#1	0.4	575,259.610	0.6
FCC	C3/C4 SPLTR OVHD	S2133008.D	10/10/2016	4:30	1.2	Antek#1	0.9	575,259.321	1.5
FCC	C3/C4 SPLTR OVHD	S2133284.D	10/11/2016	4:30	0.6	Antek#1	0.4	575,259.569	0.7
FCC	C3/C4 SPLTR OVHD	S2133548.D	10/12/2016	4:30	1.9	Antek#2	1.4	575,259.032	2.4
FCC	C3/C4 SPLTR OVHD	S2133809.D	10/13/2016	4:30	1.7	Antek#2	1.2	575,259.115	2.1
FCC	C3/C4 SPLTR OVHD	S2134063.D	10/14/2016	4:30	1.7	Antek#2	1.2	575,259.115	2.1
FCC	C3/C4 SPLTR OVHD	S2134737.D	10/17/2016	4:30	1.7	Antek#2	1.2	575,259.135	2.1
FCC	C3/C4 SPLTR OVHD	S2135017.D	10/18/2016	4:30	1.7	Antek#2	1.2	575,259.131	2.1
FCC	C3/C4 SPLTR OVHD	S2135289.D	10/19/2016	4:30	0.5	Antek#1	0.4	575,259.598	0.7
FCC	C3/C4 SPLTR OVHD	S2135553.D	10/20/2016	4:30	1.7	Antek#2	1.2	575,259.127	2.1
FCC	C3/C4 SPLTR OVHD	S2135809.D	10/21/2016	4:30	1.7	Antek#2	1.2	575,259.102	2.2
FCC	C3/C4 SPLTR OVHD	S2136572.D	10/24/2016	4:30	1.0	Antek#1	0.7	575,259.420	1.2
FCC	C3/C4 SPLTR OVHD	S2136829.D	10/25/2016	4:30	1.7	Antek#2	1.2	575,259.119	2.1
FCC	C3/C4 SPLTR OVHD	S2137114.D	10/26/2016	4:30	0.9	Antek#1	0.7	575,259.441	1.1
FCC	C3/C4 SPLTR OVHD	S2137413.D	10/27/2016	4:30	0.8	Antek#1	0.6	575,259.486	1.0
FCC	C3/C4 SPLTR OVHD	S2137682.D	10/28/2016	4:30	1.7	Antek#2	1.2	575,259.119	2.1
FCC	C3/C4 SPLTR OVHD	S2138434.D	10/31/2016	4:30	0.8	Antek#1	0.6	575,259.470	1.0
FCC	C3/C4 SPLTR OVHD	S2138717.D	11/1/2016	4:30	1.0	Antek#1	0.7	575,259.408	1.2
FCC	C3/C4 SPLTR OVHD	S2138985.D	11/2/2016	4:30	0.9	Antek#1	0.7	575,259.441	1.1
FCC	C3/C4 SPLTR OVHD	S2139262.D	11/3/2016	4:30	0.6	Antek#1	0.4	575,259.561	0.8
FCC	C3/C4 SPLTR OVHD	S2139514.D	11/4/2016	4:30	0.5	Antek#1	0.4	575,259.594	0.7
FCC	C3/C4 SPLTR OVHD	S2140271.D	11/7/2016	4:30	0.3	Antek#2	0.2	575,259.689	0.4
FCC	C3/C4 SPLTR OVHD	S2140537.D	11/8/2016	4:30	0.4	Antek#2	0.3	575,259.664	0.5
FCC	C3/C4 SPLTR OVHD	S2140837.D	11/9/2016	4:30	0.4	Antek#2	0.3	575,259.664	0.5
FCC	C3/C4 SPLTR OVHD	S2141129.D	11/10/2016	4:30	0.6	Antek#1	0.4	575,259.569	0.7
FCC	C3/C4 SPLTR OVHD	S2141384.D	11/11/2016	4:30	0.6	Antek#1	0.4	575,259.573	0.7
FCC	C3/C4 SPLTR OVHD	S2142082.D	11/14/2016	4:30	0.6	Antek#1	0.4	575,259.573	0.7
FCC	C3/C4 SPLTR OVHD	S2142331.D	11/15/2016	4:30	0.4	Antek#2	0.3	575,259.656	0.5
FCC	C3/C4 SPLTR OVHD	S2142580.D	11/16/2016	4:30	0.5	Antek#2	0.4	575,259.614	0.6
FCC	C3/C4 SPLTR OVHD	S2142853.D	11/17/2016	4:30	1.0	Antek#1	0.7	575,259.391	1.3
FCC	C3/C4 SPLTR OVHD	S2143119.D	11/18/2016	4:30	0.5	Antek#2	0.3	575,259.627	0.6
FCC	C3/C4 SPLTR OVHD	S2143832.D	11/21/2016	4:30	0.8	Antek#1	0.6	575,259.494	1.0
FCC	C3/C4 SPLTR OVHD	S2144069.D	11/22/2016	4:30	0.7	Antek#1	0.5	575,259.511	0.9
FCC	C3/C4 SPLTR OVHD	S2144349.D	11/23/2016	4:30	0.6	Antek#1	0.4	575,259.585	0.7
FCC	C3/C4 SPLTR OVHD	S2144614.D	11/24/2016	4:30	0.7	Antek#2	0.5	575,259.548	0.8
FCC	C3/C4 SPLTR OVHD	S2144885.D	11/25/2016	4:30	0.5	Antek#1	0.4	575,259.610	0.6
FCC	C3/C4 SPLTR OVHD	S2145600.D	11/28/2016	4:30	0.5	Antek#1	0.4	575,259.594	0.7
FCC	C3/C4 SPLTR OVHD	S2145853.D	11/29/2016	4:30	0.5	Antek#1	0.4	575,259.610	0.6
FCC	C3/C4 SPLTR OVHD	S2146103.D	11/30/2016	4:30	0.6	Antek#1	0.4	575,259.585	0.7
FCC	C3/C4 SPLTR OVHD	S2146374.D	12/1/2016	4:30	0.7	Antek#2	0.5	575,259.544	0.8
FCC	C3/C4 SPLTR OVHD	S2146630.D	12/2/2016	4:30	0.6	Antek#2	0.5	575,259.552	0.8
FCC	C3/C4 SPLTR OVHD	S2147384.D	12/5/2016	4:30	0.7	Antek#2	0.5	575,259.523	0.9
FCC	C3/C4 SPLTR OVHD	S2147630.D	12/6/2016	4:30	0.5	Antek#1	0.4	575,259.594	0.7
FCC	C3/C4 SPLTR OVHD	S2147897.D	12/7/2016	4:30	0.5	Antek#1	0.4	575,259.602	0.6
FCC	C3/C4 SPLTR OVHD	S2148158.D	12/8/2016	4:30	1.1	Antek#2	0.8	575,259.354	1.4
FCC	C3/C4 SPLTR OVHD	S2148417.D	12/9/2016	4:30	0.5	Antek#1	0.4	575,259.610	0.6
FCC	C3/C4 SPLTR OVHD	S2149094.D	12/12/2016	4:30	0.9	Antek#2	0.7	575,259.437	1.1
FCC	C3/C4 SPLTR OVHD	S2149353.D	12/13/2016	4:30	0.7	Antek#1	0.5	575,259.519	0.9
FCC	C3/C4 SPLTR OVHD	S2149609.D	12/14/2016	4:30	1.3	Antek#2	0.9	575,259.296	1.6
FCC	C3/C4 SPLTR OVHD	S2149864.D	12/15/2016	4:30	0.9	Antek#2	0.6	575,259.445	1.1
FCC	C3/C4 SPLTR OVHD	S2150178.D	12/16/2016	4:30	1.2	Antek#2	0.9	575,259.305	1.5
FCC	C3/C4 SPLTR OVHD	S2150903.D	12/19/2016	4:30	0.8	Antek#1	0.6	575,259.490	1.0
FCC	C3/C4 SPLTR OVHD	S2151158.D	12/20/2016	4:30	1.0	Antek#2	0.7	575,259.399	1.3
FCC	C3/C4 SPLTR OVHD	S2151415.D	12/21/2016	4:30	0.6	Antek#1	0.4	575,259.561	0.8
FCC	C3/C4 SPLTR OVHD	S2151676.D	12/22/2016	4:30	1.4	Antek#2	1.0	575,259.222	1.8
FCC	C3/C4 SPLTR OVHD	S2151930.D	12/23/2016	4:30	0.8	Antek#1	0.6	575,259.499	1.0
FCC	C3/C4 SPLTR OVHD	S2152644.D	12/26/2016	4:30	1.3	Antek#1	0.9	575,259.292	1.6
FCC	C3/C4 SPLTR OVHD	S2152871.D	12/27/2016	4:30	1.2	Antek#2	0.8	575,259.329	1.5
FCC	C3/C4 SPLTR OVHD	S2153133.D	12/28/2016	4:30	1.0	Antek#2	0.7	575,259.420	1.2
FCC	C3/C4 SPLTR OVHD	S2153404.D	12/29/2016	4:30	0.6	Antek#1	0.4	575,259.573	0.7
FCC	C3/C4 SPLTR OVHD	S2153659.D	12/30/2016	4:30	1.3	Antek#2	0.9	575,259.292	1.6

AMP Data - Sample Point #2 - FCC Combined Propane - (Unit 5008, Code 042) - 4th Quarter 2016

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	sulfur-Antek (ppmw)	Instrument ID	Vol H2S	Vol LPG	H2S Conc (ppmv)
FCC	COMBINED PROPANE	S2131178.D	10/3/2016	4:30	12.9	Antek#2	9.3	554,647.118	16.7
FCC	COMBINED PROPANE	S2131438.D	10/4/2016	4:30	1.7	Antek#2	1.2	554,653.330	2.2
FCC	COMBINED PROPANE	S2131744.D	10/5/2016	4:30	1.8	Antek#2	1.3	554,653.275	2.3
FCC	COMBINED PROPANE	S2132014.D	10/6/2016	4:30	1.9	Antek#2	1.4	554,653.220	2.5
FCC	COMBINED PROPANE	S2132297.D	10/7/2016	4:30	0.9	Antek#1	0.6	554,653.774	1.2
FCC	COMBINED PROPANE	S2133004.D	10/10/2016	4:30	1.8	Antek#2	1.3	554,653.275	2.3
FCC	COMBINED PROPANE	S2133279.D	10/11/2016	4:30	0.9	Antek#1	0.6	554,653.774	1.2
FCC	COMBINED PROPANE	S2133544.D	10/12/2016	4:30	0.8	Antek#1	0.6	554,653.830	1.0
FCC	COMBINED PROPANE	S2133804.D	10/13/2016	4:30	0.9	Antek#1	0.6	554,653.774	1.2
FCC	COMBINED PROPANE	S2134059.D	10/14/2016	4:30	1.8	Antek#2	1.3	554,653.275	2.3
FCC	COMBINED PROPANE	S2134733.D	10/17/2016	4:30	1.7	Antek#2	1.2	554,653.336	2.2
FCC	COMBINED PROPANE	S2135012.D	10/18/2016	4:30	1.7	Antek#2	1.2	554,653.336	2.2
FCC	COMBINED PROPANE	S2135285.D	10/19/2016	4:30	1.7	Antek#2	1.2	554,653.314	2.2
FCC	COMBINED PROPANE	S2135548.D	10/20/2016	4:30	0.5	Antek#1	0.3	554,654.018	0.6
FCC	COMBINED PROPANE	S2136019.D	10/21/2016	21:17	4.4	Antek#2	3.1	554,651.844	5.7
FCC	COMBINED PROPANE	S2135805.D	10/21/2016	4:30	0.9	Antek#1	0.7	554,653.752	1.2
FCC	COMBINED PROPANE	S2136568.D	10/24/2016	4:30	2.8	Antek#2	2.0	554,652.720	3.6
FCC	COMBINED PROPANE	S2136824.D	10/25/2016	4:30	2.3	Antek#2	1.7	554,652.976	3.0
FCC	COMBINED PROPANE	S2137110.D	10/26/2016	4:30	1.9	Antek#1	1.4	554,653.197	2.5
FCC	COMBINED PROPANE	S2137408.D	10/27/2016	4:30	1.9	Antek#1	1.4	554,653.225	2.4
FCC	COMBINED PROPANE	S2137678.D	10/28/2016	4:30	2.4	Antek#1	1.7	554,652.948	3.1
FCC	COMBINED PROPANE	S2138430.D	10/31/2016	4:30	3.2	Antek#2	2.3	554,652.476	4.2
FCC	COMBINED PROPANE	S2138981.D	11/2/2016	4:30	2.1	Antek#1	1.5	554,653.109	2.7
FCC	COMBINED PROPANE	S2139257.D	11/3/2016	4:30	3.8	Antek#1	2.7	554,652.149	5.0
FCC	COMBINED PROPANE	S2139510.D	11/4/2016	4:30	3.2	Antek#1	2.3	554,652.482	4.2
FCC	COMBINED PROPANE	S2140267.D	11/7/2016	4:30	3.4	Antek#1	2.4	554,652.404	4.4
FCC	COMBINED PROPANE	S2140532.D	11/8/2016	4:30	4.0	Antek#2	2.8	554,652.083	5.1
FCC	COMBINED PROPANE	S2140833.D	11/9/2016	4:30	4.0	Antek#2	2.9	554,652.071	5.1
FCC	COMBINED PROPANE	S2141124.D	11/10/2016	4:30	3.7	Antek#1	2.7	554,652.199	4.8
FCC	COMBINED PROPANE	S2141380.D	11/11/2016	4:30	4.1	Antek#2	2.9	554,651.999	5.3
FCC	COMBINED PROPANE	S2142078.D	11/14/2016	4:30	3.6	Antek#2	2.6	554,652.282	4.6
FCC	COMBINED PROPANE	S2142326.D	11/15/2016	4:30	4.0	Antek#2	2.9	554,652.060	5.2
FCC	COMBINED PROPANE	S2142576.D	11/16/2016	4:30	9.9	Antek#2	7.1	554,648.810	12.7
FCC	COMBINED PROPANE	S2142848.D	11/17/2016	4:30	9.2	Antek#2	6.6	554,649.176	11.9
FCC	COMBINED PROPANE	S2143115.D	11/18/2016	4:30	7.0	Antek#1	5.1	554,650.369	9.1
FCC	COMBINED PROPANE	S2143828.D	11/21/2016	4:30	4.0	Antek#1	2.9	554,652.044	5.2
FCC	COMBINED PROPANE	S2144064.D	11/22/2016	4:30	2.9	Antek#2	2.1	554,652.682	3.7
FCC	COMBINED PROPANE	S2144345.D	11/23/2016	4:30	3.2	Antek#1	2.3	554,652.504	4.1
FCC	COMBINED PROPANE	S2144609.D	11/24/2016	4:30	2.9	Antek#2	2.1	554,652.643	3.8
FCC	COMBINED PROPANE	S2144881.D	11/25/2016	4:30	2.1	Antek#1	1.5	554,653.125	2.7
FCC	COMBINED PROPANE	S2145596.D	11/28/2016	4:30	3.3	Antek#1	2.4	554,652.421	4.3
FCC	COMBINED PROPANE	S2145848.D	11/29/2016	4:30	2.9	Antek#1	2.1	554,652.659	3.8
FCC	COMBINED PROPANE	S2146099.D	11/30/2016	4:30	3.6	Antek#1	2.6	554,652.254	4.7
FCC	COMBINED PROPANE	S2146369.D	12/1/2016	4:30	2.4	Antek#1	1.7	554,652.931	3.1
FCC	COMBINED PROPANE	S2146626.D	12/2/2016	4:30	3.7	Antek#2	2.7	554,652.210	4.8
FCC	COMBINED PROPANE	S2147380.D	12/5/2016	4:30	2.1	Antek#2	1.5	554,653.120	2.7
FCC	COMBINED PROPANE	S2147625.D	12/6/2016	4:30	0.5	Antek#1	0.3	554,654.018	0.6
FCC	COMBINED PROPANE	S2147893.D	12/7/2016	4:30	0.5	Antek#1	0.3	554,654.024	0.6
FCC	COMBINED PROPANE	S2148153.D	12/8/2016	4:30	2.7	Antek#1	2.0	554,652.759	3.5
FCC	COMBINED PROPANE	S2149090.D	12/12/2016	4:30	2.8	Antek#2	2.0	554,652.709	3.6
FCC	COMBINED PROPANE	S2149348.D	12/13/2016	4:30	2.7	Antek#2	2.0	554,652.765	3.5
FCC	COMBINED PROPANE	S2149605.D	12/14/2016	4:30	2.4	Antek#1	1.7	554,652.942	3.1
FCC	COMBINED PROPANE	S2149859.D	12/15/2016	4:30	2.6	Antek#1	1.8	554,652.848	3.3
FCC	COMBINED PROPANE	S2150174.D	12/16/2016	4:30	4.8	Antek#1	3.4	554,651.611	6.2
FCC	COMBINED PROPANE	S2150899.D	12/19/2016	4:30	8.7	Antek#2	6.3	554,649.431	11.3
FCC	COMBINED PROPANE	S2151153.D	12/20/2016	4:30	3.9	Antek#1	2.8	554,652.088	5.1
FCC	COMBINED PROPANE	S2151411.D	12/21/2016	4:30	3.4	Antek#1	2.4	554,652.415	4.3
FCC	COMBINED PROPANE	S2151671.D	12/22/2016	4:30	2.1	Antek#2	1.5	554,653.103	2.7
FCC	COMBINED PROPANE	S2151926.D	12/23/2016	4:30	2.8	Antek#2	2.0	554,652.737	3.6
FCC	COMBINED PROPANE	S2152640.D	12/26/2016	4:30	2.4	Antek#2	1.7	554,652.937	3.1
FCC	COMBINED PROPANE	S2152866.D	12/27/2016	4:30	2.0	Antek#2	1.4	554,653.186	2.5
FCC	COMBINED PROPANE	S2153129.D	12/28/2016	4:30	2.2	Antek#2	1.6	554,653.037	2.9
FCC	COMBINED PROPANE	S2153399.D	12/29/2016	4:30	2.3	Antek#1	1.6	554,653.014	2.9
FCC	COMBINED PROPANE	S2153655.D	12/30/2016	4:30	2.2	Antek#1	1.6	554,653.064	2.8

AMP Sample Point #3 - Isom Stripper Bottoms - (Unit 5035, Code 365) - 4th Quarter 2016
Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	total sulfur (ppmw)	Vol H2S	Vol LPG	H2S Conc (ppmv)
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2134466_FID1_A.CDF	10/15/2016	22:33	3.1	2.2	347,820.929	6.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2134462_FID1_A.CDF	10/15/2016	20:39	3.1	2.3	347,820.915	6.5
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2134459_FID1_A.CDF	10/15/2016	19:07	3.1	2.2	347,820.919	6.5
C5/C6 ISOM PENEX	ISOM STRPR BTMS		10/16/2016	22:22	0.2	0.1	347,821.948	0.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2134679_FID1_A.CDF	10/16/2016	8:46	0.5	0.3	347,821.851	0.9
C5/C6 ISOM PENEX	ISOM STRPR BTMS		10/16/2016	4:15	1.7	1.2	347,821.423	3.5
C5/C6 ISOM PENEX	ISOM STRPR BTMS		10/16/2016	1:49	3.1	2.2	347,820.929	6.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2134472_FID1_A.CDF	10/16/2016	0:32	3.1	2.2	347,820.926	6.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2134981_FID1_A.CDF	10/17/2016	22:00	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2135253_FID1_A.CDF	10/18/2016	23:54	0.2	0.1	347,821.945	0.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2135220_FID1_A.CDF	10/18/2016	12:24	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2135047_FID1_A.CDF	10/18/2016	4:30	0.4	0.3	347,821.886	0.7
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2135331_FID1_A.CDF	10/19/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2135581_FID1_A.CDF	10/20/2016	4:30	0.1	0.1	347,821.959	0.3
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2136021_FID1_A.CDF	10/21/2016	22:41	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2135850_FID1_A.CDF	10/21/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2136283_FID1_A.CDF	10/22/2016	22:13	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2136528_FID1_A.CDF	10/23/2016	22:05	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2136612_FID1_A.CDF	10/24/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2137062_FID1_A.CDF	10/25/2016	21:00	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2136859_FID1_A.CDF	10/25/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2137156_FID1_A.CDF	10/26/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2137723_FID1_A.CDF	10/28/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2138474_FID1_A.CDF	10/31/2016	4:30	0.1	0.1	347,821.969	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2139027_FID1_A.CDF	11/2/2016	4:30	0.0	0.0	347,822.000	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2139290_FID1_A.CDF	11/3/2016	4:30	0.1	0.0	347,821.987	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2139555_FID1_A.CDF	11/4/2016	4:30	0.1	0.1	347,821.983	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2140311_FID1_A.CDF	11/7/2016	4:30	0.2	0.1	347,821.945	0.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2140587_FID1_A.CDF	11/8/2016	4:30	0.0	0.0	347,821.993	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2140879_FID1_A.CDF	11/9/2016	4:30	0.1	0.1	347,821.983	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2141157_FID1_A.CDF	11/10/2016	4:30	0.1	0.1	347,821.966	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2141425_FID1_A.CDF	11/11/2016	4:30	0.1	0.0	347,821.990	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142381_FID1_A.CDF	11/15/2016	4:30	4.0	2.9	347,820.602	8.3
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142789_FID1_A.CDF	11/16/2016	18:36	0.1	0.1	347,821.976	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142791_FID1_A.CDF	11/16/2016	14:28	0.1	0.0	347,821.987	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142784_FID1_A.CDF	11/16/2016	12:49	0.1	0.0	347,821.987	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142780_FID1_A.CDF	11/16/2016	10:52	0.1	0.1	347,821.976	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142622_FID1_A.CDF	11/16/2016	4:30	0.1	0.0	347,821.987	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2142881_FID1_A.CDF	11/17/2016	4:30	0.1	0.0	347,821.990	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2143160_FID1_A.CDF	11/18/2016	4:30	0.1	0.1	347,821.983	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2143543_FID1_A.CDF	11/19/2016	11:50	0.1	0.1	347,821.973	0.2
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2143542_FID1_A.CDF	11/19/2016	10:30	0.3	0.2	347,821.920	0.5
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2143872_FID1_A.CDF	11/21/2016	4:30	0.6	0.5	347,821.785	1.3
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2144099_FID1_A.CDF	11/22/2016	4:30	0.0	0.0	347,821.997	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2144391_FID1_A.CDF	11/23/2016	4:30	0.0	0.0	347,821.993	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2144838_FID1_A.CDF	11/24/2016	20:15	0.1	0.0	347,821.987	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2144823_FID1_A.CDF	11/24/2016	10:33	0.2	0.1	347,821.945	0.4
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2144843_FID1_A.CDF	11/24/2016	4:30	0.1	0.0	347,821.990	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2145084_FID1_A.CDF	11/25/2016	15:07	0.0	0.0	347,821.993	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2144926_FID1_A.CDF	11/25/2016	4:30	0.1	0.0	347,821.990	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2145640_FID1_A.CDF	11/28/2016	4:30	0.1	0.0	347,821.990	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2145884_FID1_A.CDF	11/29/2016	4:30	0.1	0.1	347,821.983	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2146145_FID1_A.CDF	11/30/2016	4:30	0.0	0.0	347,821.993	0.1
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2146671_FID1_A.CDF	12/2/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2147424_FID1_A.CDF	12/5/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2147661_FID1_A.CDF	12/6/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2147939_FID1_A.CDF	12/7/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2148187_FID1_A.CDF	12/8/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2148458_FID1_A.CDF	12/9/2016	4:30	0.0	0.0	347,822.004	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2149134_FID1_A.CDF	12/12/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2149384_FID1_A.CDF	12/13/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2149651_FID1_A.CDF	12/14/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2149893_FID1_A.CDF	12/15/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2150219_FID1_A.CDF	12/16/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2150850_FID1_A.CDF	12/18/2016	16:35	0.4	0.3	347,821.861	0.9
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2150943_FID1_A.CDF	12/19/2016	4:30	0.1	0.1	347,821.962	0.3
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2151353_FID1_A.CDF	12/20/2016	12:38	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2151189_FID1_A.CDF	12/20/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2151457_FID1_A.CDF	12/21/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2151705_FID1_A.CDF	12/22/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2152117_FID1_A.CDF	12/23/2016	10:18	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2151971_FID1_A.CDF	12/23/2016	4:30	0.3	0.2	347,821.913	0.6
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2152684_FID1_A.CDF	12/26/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2152902_FID1_A.CDF	12/27/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2153175_FID1_A.CDF	12/28/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2153433_FID1_A.CDF	12/29/2016	4:30	0.0	0.0	347,822.007	0.0
C5/C6 ISOM PENEX	ISOM STRPR BTMS	S2153700_FID1_A.CDF	12/30/2016	4:30	0.0	0.0	347,822.004	0.0

AMP Sample Point #4 - Alky Feed - (Unit 5028, Code 230) -4th Quarter 2016

Must take at least one sample semi-annually with a minimum of three months between samples

Unit Name	Code Name	Sample ID	Sample Date	Sample Time	Total sulfur-Antek (ppmw)	Instrument ID	Vol H2S	Vol LPG	H2S Conc (ppmv)
HF ALKYLATION	ALKY FEED	S2130931.D	10/2/2016	4:30	3.6	Antek#2	2.6	446,128.956	5.8
HF ALKYLATION	ALKY FEED	S2131202.D	10/3/2016	4:30	3.8	Antek#2	2.7	446,128.866	6.1
HF ALKYLATION	ALKY FEED	S2131461.D	10/4/2016	4:30	2.6	Antek#2	1.9	446,129.402	4.2
HF ALKYLATION	ALKY FEED	S2131770.D	10/5/2016	4:30	2.1	Antek#1	1.5	446,129.625	3.4
HF ALKYLATION	ALKY FEED	S2132032.D	10/6/2016	4:30	2.6	Antek#1	1.9	446,129.402	4.2
HF ALKYLATION	ALKY FEED	S2132321.D	10/7/2016	4:30	4.6	Antek#1	3.3	446,128.509	7.4
HF ALKYLATION	ALKY FEED	S2132577.D	10/8/2016	4:30	4.2	Antek#1	3.0	446,128.688	6.8
HF ALKYLATION	ALKY FEED	S2132785.D	10/9/2016	4:30	4.0	Antek#1	2.9	446,128.777	6.4
HF ALKYLATION	ALKY FEED	S2133028.D	10/10/2016	4:30	3.7	Antek#2	2.7	446,128.911	6.0
HF ALKYLATION	ALKY FEED	S2133302.D	10/11/2016	4:30	3.5	Antek#2	2.5	446,129.000	5.6
HF ALKYLATION	ALKY FEED	S2133570.D	10/12/2016	4:30	3.2	Antek#2	2.3	446,129.134	5.1
HF ALKYLATION	ALKY FEED	S2133822.D	10/13/2016	4:30	3.3	Antek#2	2.4	446,129.089	5.3
HF ALKYLATION	ALKY FEED	S2134085.D	10/14/2016	4:30	3.2	Antek#2	2.3	446,129.134	5.1
HF ALKYLATION	ALKY FEED	S2134304.D	10/15/2016	4:30	3.4	Antek#2	2.4	446,129.067	5.4
HF ALKYLATION	ALKY FEED	S2134517.D	10/16/2016	4:30	3.4	Antek#2	2.4	446,129.040	5.5
HF ALKYLATION	ALKY FEED	S2134757.D	10/17/2016	4:30	3.0	Antek#2	2.1	446,129.228	4.8
HF ALKYLATION	ALKY FEED	S2135035.D	10/18/2016	4:30	3.0	Antek#2	2.1	446,129.241	4.8
HF ALKYLATION	ALKY FEED	S2135311.D	10/19/2016	4:30	2.3	Antek#1	1.6	446,129.544	3.7
HF ALKYLATION	ALKY FEED	S2135566.D	10/20/2016	4:30	2.3	Antek#1	1.7	446,129.518	3.8
HF ALKYLATION	ALKY FEED	S2135831.D	10/21/2016	4:30	4.7	Antek#2	3.4	446,128.465	7.6
HF ALKYLATION	ALKY FEED	S2136092.D	10/22/2016	4:30	4.0	Antek#2	2.9	446,128.764	6.5
HF ALKYLATION	ALKY FEED	S2136332.D	10/23/2016	4:30	2.4	Antek#2	1.7	446,129.513	3.8
HF ALKYLATION	ALKY FEED	S2136592.D	10/24/2016	4:30	2.1	Antek#2	1.5	446,129.620	3.4
HF ALKYLATION	ALKY FEED	S2136847.D	10/25/2016	4:30	2.4	Antek#2	1.7	446,129.491	3.9
HF ALKYLATION	ALKY FEED	S2137136.D	10/26/2016	4:30	2.6	Antek#1	1.8	446,129.415	4.1
HF ALKYLATION	ALKY FEED	S2137426.D	10/27/2016	4:30	2.3	Antek#1	1.7	446,129.536	3.7
HF ALKYLATION	ALKY FEED	S2137704.D	10/28/2016	4:30	2.6	Antek#1	1.9	446,129.411	4.2
HF ALKYLATION	ALKY FEED	S2137962.D	10/29/2016	4:30	3.0	Antek#1	2.2	446,129.219	4.8
HF ALKYLATION	ALKY FEED	S2138182.D	10/30/2016	4:30	2.6	Antek#1	1.9	446,129.406	4.2
HF ALKYLATION	ALKY FEED	S2138454.D	10/31/2016	4:30	2.1	Antek#1	1.5	446,129.647	3.3
HF ALKYLATION	ALKY FEED	S2138735.D	11/1/2016	4:30	3.7	Antek#2	2.7	446,128.911	6.0
HF ALKYLATION	ALKY FEED	S2139007.D	11/2/2016	4:30	3.5	Antek#1	2.5	446,128.987	5.7
HF ALKYLATION	ALKY FEED	S2139536.D	11/4/2016	4:30	2.2	Antek#1	1.5	446,129.602	3.5
HF ALKYLATION	ALKY FEED	S2139803.D	11/5/2016	4:30	1.8	Antek#2	1.3	446,129.772	2.8
HF ALKYLATION	ALKY FEED	S2140009.D	11/6/2016	4:30	1.9	Antek#2	1.3	446,129.736	3.0
HF ALKYLATION	ALKY FEED	S2140291.D	11/7/2016	4:30	1.9	Antek#1	1.4	446,129.701	3.1
HF ALKYLATION	ALKY FEED	S2140555.D	11/8/2016	4:30	1.4	Antek#2	1.0	446,129.942	2.2
HF ALKYLATION	ALKY FEED	S2140859.D	11/9/2016	4:30	2.5	Antek#1	1.8	446,129.469	3.9
HF ALKYLATION	ALKY FEED	S2141142.D	11/10/2016	4:30	2.1	Antek#2	1.5	446,129.647	3.3
HF ALKYLATION	ALKY FEED	S2141406.D	11/11/2016	4:30	3.5	Antek#1	2.5	446,129.000	5.6
HF ALKYLATION	ALKY FEED	S2141644.D	11/12/2016	4:30	3.6	Antek#1	2.6	446,128.964	5.8
HF ALKYLATION	ALKY FEED	S2141860.D	11/13/2016	4:30	3.4	Antek#1	2.4	446,129.040	5.5
HF ALKYLATION	ALKY FEED	S2142102.D	11/14/2016	4:30	3.0	Antek#1	2.1	446,129.246	4.7
HF ALKYLATION	ALKY FEED	S2142349.D	11/15/2016	4:30	1.7	Antek#2	1.2	446,129.794	2.8
HF ALKYLATION	ALKY FEED	S2143852.D	11/21/2016	4:30	4.2	Antek#2	3.0	446,128.683	6.8
HF ALKYLATION	ALKY FEED	S2144087.D	11/22/2016	4:30	3.3	Antek#1	2.4	446,129.094	5.3
HF ALKYLATION	ALKY FEED	S2144371.D	11/23/2016	4:30	2.9	Antek#1	2.0	446,129.290	4.6
HF ALKYLATION	ALKY FEED	S2144628.D	11/24/2016	4:30	1.7	Antek#1	1.2	446,129.812	2.7
HF ALKYLATION	ALKY FEED	S2144907.D	11/25/2016	4:30	1.2	Antek#2	0.9	446,130.008	2.0
HF ALKYLATION	ALKY FEED	S2145149.D	11/26/2016	4:30	1.5	Antek#1	1.1	446,129.884	2.4
HF ALKYLATION	ALKY FEED	S2145374.D	11/27/2016	4:30	1.4	Antek#1	1.0	446,129.959	2.2
HF ALKYLATION	ALKY FEED	S2145620.D	11/28/2016	4:30	1.2	Antek#1	0.9	446,130.017	2.0
HF ALKYLATION	ALKY FEED	S2145872.D	11/29/2016	4:30	1.1	Antek#1	0.8	446,130.084	1.7
HF ALKYLATION	ALKY FEED	S2146125.D	11/30/2016	4:30	2.6	Antek#1	1.8	446,129.415	4.1
HF ALKYLATION	ALKY FEED	S2146652.D	12/2/2016	4:30	2.7	Antek#1	1.9	446,129.362	4.3
HF ALKYLATION	ALKY FEED	S2147128.D	12/4/2016	4:30	2.9	Antek#1	2.0	446,129.290	4.6
HF ALKYLATION	ALKY FEED	S2147404.D	12/5/2016	4:30	4.2	Antek#2	3.0	446,128.675	6.8
HF ALKYLATION	ALKY FEED	S2147649.D	12/6/2016	4:30	0.4	Antek#1	0.3	446,130.383	0.6
HF ALKYLATION	ALKY FEED	S2147919.D	12/7/2016	4:30	0.4	Antek#1	0.3	446,130.383	0.6
HF ALKYLATION	ALKY FEED	S2148172.D	12/8/2016	4:30	0.7	Antek#2	0.5	446,130.236	1.2
HF ALKYLATION	ALKY FEED	S2148439.D	12/9/2016	4:30	3.0	Antek#2	2.1	446,129.241	4.8
HF ALKYLATION	ALKY FEED	S2148679.D	12/10/2016	4:30	2.9	Antek#2	2.1	446,129.277	4.6
HF ALKYLATION	ALKY FEED	S2148877.D	12/11/2016	4:30	2.3	Antek#1	1.7	446,129.518	3.8
HF ALKYLATION	ALKY FEED	S2149114.D	12/12/2016	4:30	1.8	Antek#2	1.3	446,129.772	2.8
HF ALKYLATION	ALKY FEED	S2149372.D	12/13/2016	4:30	1.6	Antek#1	1.1	446,129.861	2.5
HF ALKYLATION	ALKY FEED	S2149878.D	12/15/2016	4:30	2.1	Antek#1	1.5	446,129.607	3.4
HF ALKYLATION	ALKY FEED	S2150200.D	12/16/2016	4:30	2.6	Antek#2	1.8	446,129.424	4.1
HF ALKYLATION	ALKY FEED	S2150457.D	12/17/2016	4:30	2.2	Antek#2	1.6	446,129.585	3.5
HF ALKYLATION	ALKY FEED	S2150676.D	12/18/2016	4:30	1.5	Antek#2	1.1	446,129.906	2.4
HF ALKYLATION	ALKY FEED	S2150923.D	12/19/2016	4:30	3.1	Antek#1	2.2	446,129.179	5.0
HF ALKYLATION	ALKY FEED	S2151177.D	12/20/2016	4:30	2.6	Antek#2	1.8	446,129.420	4.1
HF ALKYLATION	ALKY FEED	S2151437.D	12/21/2016	4:30	2.8	Antek#1	2.0	446,129.326	4.5
HF ALKYLATION	ALKY FEED	S2151690.D	12/22/2016	4:30	1.8	Antek#2	1.3	446,129.750	2.9
HF ALKYLATION	ALKY FEED	S2151952.D	12/23/2016	4:30	2.1	Antek#2	1.5	446,129.634	3.3
HF ALKYLATION	ALKY FEED	S2152193.D	12/24/2016	4:30	2.0	Antek#2	1.4	446,129.683	3.2
HF ALKYLATION	ALKY FEED	S2152414.D	12/25/2016	4:30	1.9	Antek#1	1.4	446,129.714	3.1
HF ALKYLATION	ALKY FEED	S2152664.D	12/26/2016	4:30	2.2	Antek#2	1.6	446,129.571	3.6
HF ALKYLATION	ALKY FEED	S2152890.D	12/27/2016	4:30	1.9	Antek#2	1.4	446,129.705	3.1
HF ALKYLATION	ALKY FEED	S2153155.D	12/28/2016	4:30	1.7	Antek#2	1.2	446,129.812	2.7
HF ALKYLATION	ALKY FEED	S2153418.D	12/29/2016	4:30	1.5	Antek#1	1.1	446,129.901	2.4
HF ALKYLATION	ALKY FEED	S2153681.D	12/30/2016	4:30	1.9	Antek#1	1.3	446,129.727	3.0
HF ALKYLATION	ALKY FEED	S2153925.D	12/31/2016	4:30	1.9	Antek#2	1.4	446,129.705	3.1

Dreager Tube Sampling
AMP Sample Point #5 - Isom Make-up Hydrogen

Note: Monitoring Requirement - Must take at least one sample semi-annually with a minimum of three months between samples.

Date	Time (hrs)	Result (ppm H2S)	Comments	Sampler
10/22/2016	14:53	0		TWR
11/7/2016	7:04	0		GKK
12/5/2016	8:27	0		YI8

Dreager Tube Sampling
AMP Sample Point #6 - PSA Offgas

Note: Monitoring Requirement - Must take at least one sample semi-annually with a minimum of three months between samples

Date	Time	Result (ppm H2S)	Comments	Sampler
10/3/2016	7:58	0		GIF
11/7/2016	7:41	0		KQ0
12/5/2016	8:01	0		KQ0

Appendix B

Quarterly CGA Results

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	42-AI-3	**Calender Quarter:**	FOURTH
Unit:	#3 SRU	**Analyzer Span:**	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	3.245249.3
Date:	Monday, November 07, 2016	**Technician:**	JACOB PAZUREK
Start Time:	13:02	**End Time:**	14:20

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1920

Cylinder Pressure (End)	
Low Range	1700
High Range	1910

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	175894	CC352324
Cylinder Certification Date:	3/3/2011	3/31/2014
Cylinder Expiration Date:	3/3/2019	3/31/2022
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	128.5	280.1

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	109.23	238.09
Range of Allowance (±15%) High	147.78	322.12
Test Run #1	**126.93**	**277.44**
Test Run #2	**127.21**	**277.24**
Test Run #3	**127.40**	**277.42**
Average Result (Cm)	127.18	277.37
Accuracy (%)	-1.03	-0.98
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	42-AI-4	**Calender Quarter:**	FOURTH
Unit:	#3 SRU	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.245244.3
Date:	Monday, November 07, 2016	**Technician:**	JACOB PAZUREK
Start Time:	13:02	**End Time:**	14:20

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1910
High Range	1710

Cylinder Pressure (End)	
Low Range	1900
High Range	1700

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC247661	CC335268
Cylinder Certification Date:	3/27/2014	2/11/2011
Cylinder Expiration Date:	3/27/2022	2/11/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	4.967	9.521

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.22	8.09
Range of Allowance (±15%) High	5.71	10.95
Test Run #1	**5.11**	**9.67**
Test Run #2	**5.10**	**9.67**
Test Run #3	**5.10**	**9.67**
Average Result (Cm)	5.10	9.67
Accuracy (%)	2.72	1.56
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	2-AI-103	**Calender Quarter:**	FOURTH
Unit:	#2 CRUDE	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.246580.2
Date:	Monday, November 07, 2016	**Technician:**	BRYAN WINN
Start Time:	13:06	**End Time:**	14:24

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1700
High Range	1600

Cylinder Pressure (End)	
Low Range	1700
High Range	1595

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC171855	CC174008
Cylinder Certification Date:	5/6/2010	2/17/2011
Cylinder Expiration Date:	5/6/2018	2/17/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.162	9.998

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	4.39	8.50
Range of Allowance (±15%) High	5.94	11.50
Test Run #1	**5.11**	**9.93**
Test Run #2	**5.11**	**9.93**
Test Run #3	**5.10**	**9.92**
Average Result (Cm)	5.11	9.93
Accuracy (%)	1.07	0.71
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	2-AI-104	**Calender Quarter:**	FOURTH
Unit:	#2 CRUDE	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.246579.2
Date:	Monday, November 07, 2016	**Technician:**	BRYAN WINN
Start Time:	13:06	**End Time:**	14:24

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1900
High Range	800

Cylinder Pressure (End)	
Low Range	1900
High Range	795

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC402777	CC67661
Cylinder Certification Date:	7/1/2014	7/31/2013
Cylinder Expiration Date:	7/1/2017	7/31/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	24.9	54.3

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	21.12	46.12
Range of Allowance (±15%) High	28.58	62.40
Test Run #1	**24.39**	**55.34**
Test Run #2	**24.32**	**55.42**
Test Run #3	**24.38**	**55.39**
Average Result (Cm)	24.36	55.38
Accuracy (%)	-1.96	2.07
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	31-AI-1A	**Calender Quarter:**	FOURTH
Unit:	#2 SRU	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	C149549
Date:	Tuesday, November 08, 2016	**Technician:**	BRYAN WINN
Start Time:	14:16	**End Time:**	14:56

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1750
High Range	1230

Cylinder Pressure (End)	
Low Range	1740
High Range	1220

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC37936	CC175979
Cylinder Certification Date:	7/5/2011	7/7/2011
Cylinder Expiration Date:	7/5/2019	7/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.122	10.070

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.35	8.56
Range of Allowance (±15%) High	5.89	11.58
Test Run #1	**5.11**	**10.11**
Test Run #2	**5.10**	**10.10**
Test Run #3	**5.10**	**10.10**
Average Result (Cm)	5.10	10.10
Accuracy (%)	0.36	0.33
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	31-AI-1B	**Calender Quarter:**	FOURTH
Unit:	#2 SRU	**Analyzer Span:**	0 - 500 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	6981
Date:	Tuesday, November 08, 2016	**Technician:**	BRYAN WINN
Start Time:	14:16	**End Time:**	14:14

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1750
High Range	1230

Cylinder Pressure (End)	
Low Range	1740
High Range	1220

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC37936	CC175979
Cylinder Certification Date:	7/5/2011	7/7/2011
Cylinder Expiration Date:	7/5/2019	7/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	127.000	279.500

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	107.95	237.58
Range of Allowance (±15%) High	146.05	321.43
Test Run #1	129.88	283.73
Test Run #2	130.52	283.98
Test Run #3	130.72	283.22
Average Result (Cm)	130.37	283.64
Accuracy (%)	2.66	1.48
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	32-AI-250	**Calender Quarter:**	FOURTH
Unit:	HDH	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.346624.7
Date:	Tuesday, November 08, 2016	**Technician:**	BRYAN WINN
Start Time:	12:42	**End Time:**	13:59

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1750
High Range	1700

Cylinder Pressure (End)	
Low Range	1730
High Range	1700

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC327623	CC337712
Cylinder Certification Date:	2/4/2011	2/3/2011
Cylinder Expiration Date:	2/4/2019	2/3/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.023	10.000

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.27	8.50
Range of Allowance (±15%) High	5.78	11.50
Test Run #1	**4.98**	**9.99**
Test Run #2	**4.99**	**9.99**
Test Run #3	**4.99**	**9.99**
Average Result (Cm)	4.99	9.99
Accuracy (%)	-0.72	-0.10
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	32-AI-251	**Calender Quarter:**	FOURTH
Unit:	HDH	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.346654.7
Date:	Tuesday, November 08, 2016	**Technician:**	BRYAN WINN
Start Time:	12:42	**End Time:**	13:59

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1880
High Range	1600

Cylinder Pressure (End)	
Low Range	1820
High Range	1600

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC48525	CC400311
Cylinder Certification Date:	3/20/2015	1/31/2013
Cylinder Expiration Date:	3/20/2018	1/31/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.00	57.71

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	21.25	49.05
Range of Allowance (±15%) High	28.75	66.37
Test Run #1	**25.17**	**59.26**
Test Run #2	**25.20**	**58.52**
Test Run #3	**25.14**	**58.36**
Average Result (Cm)	25.17	58.71
Accuracy (%)	0.68	1.74
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-13	**Calender Quarter:**	FOURTH
Unit:	Boiler #7	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.347965.0
Date:	Tuesday, November 08, 2016	**Technician:**	JACOB PAZUREK
Start Time:	12:44	**End Time:**	14:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1580

Cylinder Pressure (End)	
Low Range	1700
High Range	1570

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.038	10.110

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.28	8.59
Range of Allowance (±15%) High	5.79	11.63
Test Run #1	**4.97**	**10.06**
Test Run #2	**4.97**	**10.06**
Test Run #3	**4.97**	**10.06**
Average Result (Cm)	4.97	10.06
Accuracy (%)	-1.38	-0.52
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-14	**Calender Quarter:**	FOURTH
Unit:	Boiler #7	**Analyzer Span:**	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.347963.0
Date:	Tuesday, November 08, 2016	**Technician:**	JACOB PAZUREK
Start Time:	12:44	**End Time:**	14:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1510
High Range	1700

Cylinder Pressure (End)	
Low Range	1500
High Range	1690

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC158095	CC403016
Cylinder Certification Date:	8/3/2011	7/9/2013
Cylinder Expiration Date:	8/3/2019	7/9/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	129.2	277.7

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	109.82	236.05
Range of Allowance (±15%) High	148.58	319.36
Test Run #1	**128.18**	**275.32**
Test Run #2	**128.22**	**274.93**
Test Run #3	**128.15**	**274.93**
Average Result (Cm)	128.19	275.06
Accuracy (%)	-0.79	-0.95
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-15	**Calender Quarter:**	FOURTH
Unit:	Boiler #7	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	**Serial Number:**	3.347963.0
Date:	Tuesday, November 08, 2016	**Technician:**	JACOB PAZUREK
Start Time:	12:44	**End Time:**	14:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1580

Cylinder Pressure (End)	
Low Range	1700
High Range	1570

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	259.00	573.90

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	220.15	487.82
Range of Allowance (±15%) High	297.85	659.99
Test Run #1	**255.20**	**559.18**
Test Run #2	**255.37**	**559.79**
Test Run #3	**255.58**	**560.32**
Average Result (Cm)	255.38	559.76
Accuracy (%)	-1.40	-2.46
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-18	**Calender Quarter:**	FOURTH
Unit:	Boiler #8	**Analyzer Span:**	0 - 25%
Component:	OXYGEN (O_2)	**Serial Number:**	3.347966.0
Date:	Tuesday, November 08, 2016	**Technician:**	JACOB PAZUREK
Start Time:	12:44	**End Time:**	14:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1580

Cylinder Pressure (End)	
Low Range	1700
High Range	1570

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.038	10.110

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.28	8.59
Range of Allowance (±15%) High	5.79	11.63
Test Run #1	**4.97**	**10.07**
Test Run #2	**4.98**	**10.07**
Test Run #3	**4.98**	**10.07**
Average Result (Cm)	4.98	10.07
Accuracy (%)	-1.25	0.40
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-19	**Calender Quarter:**	FOURTH
Unit:	Boiler #8	**Analyzer Span:**	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.347964.0
Date:	Tuesday, November 08, 2016	**Technician:**	JACOB PAZUREK
Start Time:	12:44	**End Time:**	14:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1510
High Range	1700

Cylinder Pressure (End)	
Low Range	1500
High Range	1690

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	CC158095	CC403016
Cylinder Certification Date:	8/3/2011	7/9/2013
Cylinder Expiration Date:	8/3/2019	7/9/2021
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	129.2	277.7

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	109.82	236.05
Range of Allowance (±15%) High	148.58	319.36
Test Run #1	124.33	271.31
Test Run #2	123.87	270.70
Test Run #3	124.28	270.71
Average Result (Cm)	124.16	270.91
Accuracy (%)	-3.90	-2.45
Allowable Accuracy Error (%)	± 15%	± 15%
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	16-AI-20	**Calender Quarter:**	FOURTH
Unit:	Boiler #8	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	**Serial Number:**	3.347964.0
Date:	Tuesday, November 08, 2016	**Technician:**	JACOB PAZUREK
Start Time:	12:44	**End Time:**	14:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1580

Cylinder Pressure (End)	
Low Range	1700
High Range	1570

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC151353	SG9152543BAL
Cylinder Certification Date:	8/9/2011	8/9/2011
Cylinder Expiration Date:	8/9/2019	8/9/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	259.00	573.90

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	220.15	487.82
Range of Allowance (±15%) High	297.85	659.99
Test Run #1	**257.69**	**564.76**
Test Run #2	**257.63**	**564.97**
Test Run #3	**257.79**	**565.12**
Average Result (Cm)	257.70	564.95
Accuracy (%)	-0.50	-1.56
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

***NOTE:** Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).*

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-106	**Calender Quarter:**	FOURTH
Unit:	WASTE WATER	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	H004440001
Date:	Wednesday, November 09, 2016	**Technician:**	BRYAN WINN
Start Time:	12:51	**End Time:**	13:38

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1940
High Range	1990

Cylinder Pressure (End)	
Low Range	1930
High Range	1980

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC330083	CC159459
Cylinder Certification Date:	2/11/2015	2/16/2015
Cylinder Expiration Date:	2/11/2018	2/16/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	75.3	167.9

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	64.01	142.72
Range of Allowance (±15%) High	86.60	193.09
Test Run #1	**75.33**	**177.10**
Test Run #2	**74.11**	**177.80**
Test Run #3	**73.76**	**178.30**
Average Result (Cm)	74.40	177.73
Accuracy (%)	-1.20	5.86
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	7-AI-205	**Calender Quarter:**	FOURTH
Unit:	VRU	**Analyzer Span:**	0 - 5%
Component:	PROPANE (C_3H_8)	**Serial Number:**	ERFH-0934
Date:	Wednesday, November 09, 2016	**Technician:**	JACOB PAZUREK
Start Time:	15:39	**End Time:**	16:06

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1400
High Range	1300

Cylinder Pressure (End)	
Low Range	1395
High Range	1295

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	SG9160857BAL	LCCOSA10333
Cylinder Certification Date:	3/24/2014	6/22/2011
Cylinder Expiration Date:	3/24/2022	6/22/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	1.36	2.63

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	1.16	2.23
Range of Allowance (±15%) High	1.57	3.02
Test Run #1	**1.55**	**3.00**
Test Run #2	**1.55**	**3.00**
Test Run #3	**1.55**	**3.00**
Average Result (Cm)	1.55	3.00
Accuracy (%)	13.68	14.09
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

***NOTE:** Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).*

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	08-AI-0030A	**Calender Quarter:**	FOURTH
Unit:	8-B-1	**Analyzer Span:**	0 - 15%
Component:	OXYGEN (O_2)	**Serial Number:**	3.359909.2
Date:	Thursday, November 10, 2016	**Technician:**	BRYAN WINN
Start Time:	13:17	**End Time:**	14:35

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1700
High Range	1610

Cylinder Pressure (End)	
Low Range	1700
High Range	1600

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	SG9169569BAL	EB0020125
Cylinder Certification Date:	7/1/2013	10/7/2011
Cylinder Expiration Date:	7/1/2021	10/7/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.002	10.010

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.25	8.51
Range of Allowance (±15%) High	5.75	11.51
Test Run #1	**5.00**	**10.00**
Test Run #2	**4.99**	**10.00**
Test Run #3	**4.99**	**10.00**
Average Result (Cm)	4.99	10.00
Accuracy (%)	-0.17	-0.10
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	08-AI-0030B	**Calender Quarter:**	FOURTH
Unit:	8-B-1	**Analyzer Span:**	0 - 100 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.359841-2
Date:	Thursday, November 10, 2016	**Technician:**	BRYAN WINN
Start Time:	13:17	**End Time:**	14:35

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2100
High Range	1600

Cylinder Pressure (End)	
Low Range	2100
High Range	1600

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC323462	XC024745B
Cylinder Certification Date:	3/28/2016	2/21/2011
Cylinder Expiration Date:	3/28/2019	2/21/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	25.34	54.45

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	21.54	46.28
Range of Allowance (±15%) High	29.14	62.62
Test Run #1	**25.66**	**54.43**
Test Run #2	**25.62**	**54.82**
Test Run #3	**25.79**	**55.03**
Average Result (Cm)	25.69	54.76
Accuracy (%)	1.38	0.57
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Opacity Audit

Saint Paul Park, MN

Tag #:	8-AI-3A	**Filter Certification Date:**	May 18, 2016
Unit:	FCC	***Note: Cert. date must be no later than 6 months of test***	
Date:	Tuesday, November 15, 2016	**Instrument Serial No:**	440-A-6000044023-B21/423
Technician:	BRYAN WINN	**Monitor Pathlength**	60.125"
Start Time:	12:50	**Outlet Pathlength:**	60.125"
End Time:	14:10	**Pathlength Corrected:**	No

Calibrated Neutral Density Filter Values

Actual Optical Density Filter Values	
Low Range	10.75
Mid Range	19.61
High Range	34.49

Adjusted Optical Density Filter Values	
Low Range	N/A
Mid Range	N/A
High Range	N/A

Opacity Audit Readings

Run Number	Range	Calibration Filter (%Ca)	Instrument Reading (%Cm)	Arithmetic Values (Ca - Cm)		
				Low	Mid	High
1-1	Low	10.75	11.533	-0.78		
1-2	Mid	19.61	20.131		-0.52	
1-3	High	34.49	34.948			-0.46
2-1	Low	10.75	11.534	-0.78		
2-2	Mid	19.61	20.128		-0.52	
2-3	High	34.49	35.243			-0.75
3-1	Low	10.75	11.534	-0.78		
3-2	Mid	19.61	20.331		-0.72	
3-3	High	34.49	35.329			-0.84
4-1	Low	10.75	11.534	-0.78		
4-2	Mid	19.61	20.039		-0.43	
4-3	High	34.49	34.932			-0.44
5-1	Low	10.75	11.535	-0.79		
5-2	Mid	19.61	20.246		-0.64	
5-3	High	34.49	35.037			-0.55

Opacity Audit Results

	Low	Mid	High
Arithmetic Mean	-0.78	-0.57	-0.61
Standard Deviation	0.00	0.11	0.18
Confidence Coefficient	0.00	0.14	0.22
Calibration Error (%)	0.78	0.71	0.83
Allowable Calibration Error (%)	≤ 3%	≤ 3%	≤ 3%
Test Results			

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from Saint Paul Park Refining Company (SPPRC) Title V Permit and QA/QC Program per Minnesota State Rule 7017 Subpart (1).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	11-AI-1	**Calender Quarter:**	FOURTH
Unit:	REFORMER	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	G0024
Date:	Monday, December 05, 2016	**Technician:**	JACOB PAZUREK
Start Time:	13:27	**End Time:**	14:16

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1710

Cylinder Pressure (End)	
Low Range	1700
High Range	1700

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC330083	CC159459
Cylinder Certification Date:	2/11/2015	2/13/2015
Cylinder Expiration Date:	2/11/2018	2/13/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	75.3	167.9

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	63.99	142.72
Range of Allowance (±15%) High	86.57	193.09
Test Run #1	**72.88**	**180.9**
Test Run #2	**74.46**	**179.3**
Test Run #3	**74.40**	**179.6**
Average Result (Cm)	73.91	179.93
Accuracy (%)	1.82	7.17
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-146	**Calender Quarter:**	FOURTH
Unit:	FLARE	**Analyzer Span:**	0 - 300 PPM
Component:	HYDROGEN SULFIDE (H_2S)	**Serial Number:**	1060
Date:	Tuesday, December 06, 2016	**Technician:**	BRYAN WINN
Start Time:	11:36	**End Time:**	12:01

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1710
High Range	1710

Cylinder Pressure (End)	
Low Range	1700
High Range	1700

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC330083	CC159459
Cylinder Certification Date:	2/11/2015	2/16/2015
Cylinder Expiration Date:	2/11/2018	2/16/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	75.3	167.9

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	**64.01**	**142.72**
Range of Allowance (±15%) High	**86.60**	**193.09**
Test Run #1	**72.18**	**164.59**
Test Run #2	**71.79**	**165.52**
Test Run #3	**70.54**	**166.35**
Average Result (Cm)	**71.50**	**165.48**
Accuracy (%)	**-5.04**	**-1.44**
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	14-AI-147 - RANGE A	**Calender Quarter:**	FOURTH
Unit:	FLARE	**Analyzer Span:**	0-5000 PPM
Component:	H_2S AS SULFUR DIOXIDE (SO_2)	**Serial Number:**	SL-09790714
Date:	Wednesday, December 07, 2016	**Technician:**	JACOB PAZUREK
Start Time:	13:44	**End Time:**	16:05

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	2190
High Range	2060

Cylinder Pressure (End)	
Low Range	2180
High Range	2050

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC501425	CC467298
Cylinder Certification Date:	5/20/2016	9/24/2015
Cylinder Expiration Date:	5/20/2017	9/24/2018
Type of Cylinder Certification:	Certified Standard- Spec	Certified Standard- Spec
Concentration (ppm or % Ca):	1275.0	2782.0

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	1083.75	2364.70
Range of Allowance (±15%) High	1466.25	3199.30
Test Run #1	**1248.69**	**2759.30**
Test Run #2	**1258.82**	**2785.93**
Test Run #3	**1267.19**	**2779.44**
Average Result (Cm)	1258.23	2774.89
Accuracy (%)	-1.32	-0.26
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-2A	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 10%
Component:	OXYGEN (O_2)	**Serial Number:**	3.249395.1
Date:	Tuesday, December 20, 2016	**Technician:**	BRYAN WINN
Start Time:	12:14	**End Time:**	15:03

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1240
High Range	1440

Cylinder Pressure (End)	
Low Range	1200
High Range	1430

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC113590	SG9142478BAL
Cylinder Certification Date:	1/21/2010	1/20/2010
Cylinder Expiration Date:	1/21/2018	1/20/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	5.076	9.995

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	4.31	8.50
Range of Allowance (±15%) High	5.84	11.49
Test Run #1	**5.06**	**10.11**
Test Run #2	**5.06**	**10.14**
Test Run #3	**5.05**	**10.13**
Average Result (Cm)	5.06	10.13
Accuracy (%)	0.38	1.32
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-2B	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 3000 PPM
Component:	SULFUR DIOXIDE (SO_2)	**Serial Number:**	3.240138.2
Date:	Monday, December 19, 2016	**Technician:**	BRYAN WINN
Start Time:	12:14	**End Time:**	15:03

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Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1400
High Range	1290

Cylinder Pressure (End)	
Low Range	1395
High Range	1260

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	W479174	CC152607
Cylinder Certification Date:	9/16/2011	9/20/2011
Cylinder Expiration Date:	9/16/2019	9/20/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	782.0	1699.0

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	664.70	1444.15
Range of Allowance (±15%) High	899.30	1953.85
Test Run #1	**783.50**	**1705.41**
Test Run #2	**784.11**	**1703.89**
Test Run #3	**782.59**	**1698.65**
Average Result (Cm)	783.40	1702.65
Accuracy (%)	0.18	0.21
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-5	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON MONOXIDE (CO)	**Serial Number:**	3.249390.1
Date:	Tuesday, December 20, 2016	**Technician:**	BRYAN WINN
Start Time:	12:15	**End Time:**	15:03

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1240
High Range	1440

Cylinder Pressure (End)	
Low Range	1200
High Range	1430

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC113590	SG9142478BAL
Cylinder Certification Date:	1/21/2010	1/20/2010
Cylinder Expiration Date:	1/21/2018	1/20/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	237.40	545.20

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	201.79	463.42
Range of Allowance (±15%) High	273.01	626.98
Test Run #1	**246.80**	**548.18**
Test Run #2	**246.80**	**549.13**
Test Run #3	**246.82**	**548.87**
Average Result (Cm)	246.81	548.73
Accuracy (%)	3.96	0.65
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-6	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 1000 PPM
Component:	CARBON DIOXIDE (CO_2)	**Serial Number:**	3.249390.1
Date:	Tuesday, December 20, 2016	**Technician:**	BRYAN WINN
Start Time:	12:15	**End Time:**	15:03

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1240
High Range	1440

Cylinder Pressure (End)	
Low Range	1200
High Range	1430

Cylinder Gas Information		
	Low Calibration Gas	**High Calibration Gas**
Cylinder Certification Number:	CC113590	SG9142478BAL
Cylinder Certification Date:	1/21/2010	1/20/2010
Cylinder Expiration Date:	1/21/2018	1/20/2018
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	7.47	16.25

Calibration Gas Audit Results		
	Low Cal Gas	**High Cal Gas**
Range of Allowance (±15%) Low	6.35	13.81
Range of Allowance (±15%) High	8.59	18.69
Test Run #1	**7.46**	**16.10**
Test Run #2	**7.46**	**16.11**
Test Run #3	**7.46**	**16.10**
Average Result (Cm)	7.46	16.10
Accuracy (%)	-0.12	-0.90
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Northern Tier Energy

NORTHERN TIER ENERGY

Saint Paul Park Refinery Cal Gas Audit

Saint Paul Park, MN

Tag #:	8-AI-7	**Calender Quarter:**	FOURTH
Unit:	FCC	**Analyzer Span:**	0 - 500 PPM
Component:	OXIDES OF NITROGEN (NO_X)	**Serial Number:**	3.240138.2
Date:	Tuesday, December 20, 2016	**Technician:**	BRYAN WINN
Start Time:	12:14	**End Time:**	15:03

Cylinder Gas Pressure Values

Cylinder Pressure (Start)	
Low Range	1120
High Range	1280

Cylinder Pressure (End)	
Low Range	1110
High Range	1275

Cylinder Gas Information

	Low Calibration Gas	High Calibration Gas
Cylinder Certification Number:	SG9113283BAL	SG9163697BAL
Cylinder Certification Date:	2/23/2011	2/24/2011
Cylinder Expiration Date:	2/23/2019	2/24/2019
Type of Cylinder Certification:	EPA Protocol One	EPA Protocol One
Concentration (ppm or % Ca):	123.5	274.5

Calibration Gas Audit Results

	Low Cal Gas	High Cal Gas
Range of Allowance (±15%) Low	104.98	233.33
Range of Allowance (±15%) High	142.03	315.68
Test Run #1	**123.33**	**270.40**
Test Run #2	**123.47**	**270.41**
Test Run #3	**124.00**	**270.55**
Average Result (Cm)	123.60	270.45
Accuracy (%)	0.08	1.47
Allowable Accuracy Error (%)	**± 15%**	**± 15%**
Test Results		

TEST WAS SUCCESSFUL!

NOTE: Test Method and Procedures can be referenced from United States Environmental Protection Agency (US EPA) Code of Federal Regulations (CFR) Title 40 Part 60 Appendix F (5.2).

Opacity Certification Services, LLC
A Proud Veteran-Owned Business
8600 Harbor Drive
Raleigh, North Carolina 27615
Phone 919.215.9384
Fax 919.846.6041
Web: www.opacitycert.com

Results of NIST-Traceable Opacity Filter (Audit Attenuators) Certification

Customer: **St. Paul Park Refining Co.**

Date of Certification: May 18, 2016	Document No. **051816-02**
Date of Expiration: May 17, 2017	

*Filters (Attenuators) are certified in accordance with 40 CFR Part 60, Subpart B, "**Performance Specification 1**", as well as the most current **ASTM D6216** standard and **Opacity Procedure 3**. Laboratory spectrophotometer is calibrated daily by use of NIST SRM2031b standard reference materials.*

Spectrophotometer

Spectrophotometer: **Varian (HP) Cary 50 Conc**		Serial Number: **EL06023153**
Scanning Range: **380-780nm**	Data Interval: **10nm**	Spectral Bandpass: **1.5nm**
Maximum Accuracy: **± 0.25 Absolute Opacity**		Laboratory Temperature: **72° F (± 3°)/22° C (± 1°)**

NIST Standard Reference Material (SRM)

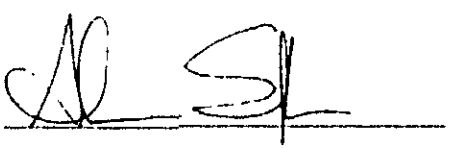
SRM Type: **NIST 2031b series**	Serial Number: **Blank; 709-10; 709-30; 709-90**
SRM Date of Certification: **January 27, 2015**	SRM Date of Expiration: **January 31, 2017**

Opacity Monitor

Opacity Monitor Make/Model:	**Thermo Environmental 440** series		
Monitor Light Source:	**Incandescent**	Straight stack correction factor:	**1.000**
Angle of Incidence:	**10 degrees**	Correction factor (if given):	**1.000**

Opacity Filter Data		Set/Stack ID#: Set #1			
Serial Number	**Opacity**	**Transmittance**	**Optical Density**	**Previous Opacity**	**Δ Opacity**
3002	**10.75%**	89.25%	0.0494	10.75%	0.00
SK22	**19.61%**	80.39%	0.0948	19.76%	-0.15
SK23	**34.49%**	65.51%	0.1837	34.52%	-0.03

Signature of Spectrophotometer Operator



MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity
Other: _____

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Vista 2020 GC

MFR: Combustion Engineering

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: COMG7

EMISSION LIMITS AND AVERAGING TIME:
162 ppm H2S - 3 hr rolling average
60 ppm H2S - 365 day rolling average

EMISSION UNIT(S): Refinery fuel gas system

EMISSION BASIS: 40 CFR 60 NSPS Subpart Ja

ASSOCIATED ITEMS: EQUI1, EQUI3, EQUI4, EQUI5, EQUI6, EQUI7, EQUI8, EQUI9, EQUI10, EQUI11, EQUI12, EQUI13, EQUI14, EQUI15, EQUI17, EQUI18, EQUI19, EQUI20, EQUI21, EQUI26, , EQUI326, EQUI23, EQUI24, EQUI33, EQUI42, EQUI43, and EQUI44.

NOTE: H2S limits within 40 CFR 60 Subp. Ja only apply to EQUI42, EQUI43, and EQUI44.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	3-hour	365-day	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	85.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	85.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	3.85%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: _____

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE: _____

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 365-day average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Refinery fuel gas system

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
	0.00	
Total	0.00	
b) Non-monitor malfunction		
	0.00	
Total	0.00	
c) QA calibration		
	0.00	
Total	0.00	
d) Other known causes		
10/19/2016 9:00		
10/19/2016 17:00	8.00	Preventive maintenance.
10/26/2016 12:00		
10/26/2016 14:00	2.00	Missing data.
12/9/2016 7:00		
12/12/2016 10:00	75.00	Failed morning calibration. Low flow of calibration gas to analyzer.
Total	85.00	
e) Unknown causes		
	0.00	
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR
MODEL: Fuel Gas Flow Rate/FG H2S CEM
MFR:

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM:
EQUI1

EMISSION LIMIT AND AVERAGE TIME:
64.08 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Alkylation
Heater 28-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI173, STRU47, COMG20

NOTE: There was zero fuel oil runtime during the quarter.

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2156	2156	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP007, EQUI1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP007, EQUI1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 28-B-1 (EQUI1, GP007)

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): Heater 28-B-1 (EQUI1, GP007)

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx CO CO2 O2 TRS H2S HCL (Opacity)

Other: Metal HAP per MACT Subpart UUU

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: 440

MFR: Thermo Electron Corporation

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMITS AND AVERAGING TIME: 30% opacity; except for one six minute period in any one hour (1)

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: MN Rule 7011.1405, subp. 1, Item B; 40 CFR 63.1564

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is approximately a 30,500 bpd fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (MIN)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (MIN)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	660.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (MIN)	0.00	2 TOTAL DURATION (MIN)	660.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.50%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: (1) According to MN Rules 7011.1405, Subpt. 1, B and MACT II, an exceedance of this standard occurs whenever any one-hour period contains two or more 6-minute periods during which the average opacity exceeds 30%. As allowed in the above noted regulation, if two or more 6-minute average is exceeded in any one hour, it is reported in the summary at the front of this report.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity

DATE/TIME	TOTAL DURATION (MIN)	MAX. OPACITY (%) # of 6 min periods	MAX. OPACITY (%) Max Opacity (%)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		
b) Control equipment				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		
c) Process problems				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		
d) Other known causes				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		
e) Unknown causes				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		
f) Soot blowing				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		
g) Fuel problems				
10/1/2016				
1/1/2017				No excess emissions.
total	0.00	0		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Opacity

DATE/TIME	TOTAL DURATION (MIN)	CAUSE/CORRECTIVE ACTION

a) Monitor malfunction

Total 0.00

b) Non-monitor malfunction

Total 0.00

c) QA calibration

10/1/2016 12/31/2016	552.0	Daily calibrations
11/15/2016 10:30 11/15/2016 10:48	18.00	Calibration
11/15/2016 12:48 11/15/2016 14:18	90.00	Quarterly audit

Total 660.0

d) Other known causes

Total 0.00

e) Unknown causes

Total 0.00

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: 80203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX NOx (CO) CO2 O2 TRS H2S HCL Opacity

Other: Organic HAP per MACT Subpart UUU

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Advance Optima (Uras 14) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 500 ppmvd - 1 hour average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: NSPS Subpart J - 40 CFR 60.103(a)
40 CFR 63.1565(a)(1)(ii)

ASSOCIATED ITEMS: EQUI164, TREA17

40 CFR 63, MACT Subpart UUU, Table 8, Option 2

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	3.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	2.00	d) Other known causes	10.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	5.00	2 TOTAL DURATION (HRS)	11.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.23%	3 PERCENT OF TOTAL CEM DOWNTIME	0.50%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section. During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration. See Excess Emissions Summary for greater detail.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), hourly average Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
10/1/2016 10:00				
10/1/2016 13:00	3.00	1,644	1,060	Please see Incident A in the report summary.
Total	3.00			
b) Control equipment				
10/1/2016				
1/1/2017		No excess emissions.		
Total	0.00			
c) Process problems				
10/1/2016				
1/1/2017		No excess emissions.		
Total	0.00			
d) Other known causes				
10/4/2016 23:00				
10/5/2016 0:00	1.00	762	517	Please see Incident B in the report summary.
12/18/2016 22:00				
12/18/2016 23:00	1.00	561	380	Please see Incident H in the report summary.
Total	2.00			
e) Unknown causes				
10/1/2016				
1/1/2017		No excess emissions.		
Total	0.00			
f) Soot blowing				
10/1/2016				
1/1/2017		No excess emissions.		
Total	0.00			
g) Fuel problems				
10/1/2016				
1/1/2017		No excess emissions.		
Total	0.00			

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: CO and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
12/19/16 12:00		
12/19/16 13:00	1.00	Quarterly CGA audit.
Total	1.00	
d) Other known causes		
12/19/2016 0:00		
12/19/2016 10:00	10.00	Communications issue.
Total	10.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 SOX (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Advance Optima (Uras UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME:
90 ppmvd, O2 free - 7 day rolling average
70 ppmvd, O2 free - 365 day rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS:
Consent Decree Effective 4/3/06

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit.
The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	7 Day	365 Day
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	10.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	11.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.50%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 7-day rolling avg	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day rolling avg	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
b) Non-monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
c) QA calibration		
Total	1.00	See FCC CO CEM downtime.
d) Other known causes		
Total	10.00	See FCC CO CEM downtime.
e) Unknown causes		
Total	0.00	See FCC CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) SOX NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME:
100 ppmvd, O2 free - 7 day rolling average
50 ppmvd, O2 free - 365 day rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: Consent Decree Effective 6/30/06

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY	7 Day	365 Day
1 DURATION OF EXCESS EMISSIONS (HRS)		
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY	
1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	10.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	11.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.50%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (days)	MAX. CONCENTRATION (ppm), 7-day average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AOD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (ppm), 365-day average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2 ppmvd, O2 free

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
NOTE: CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm		
a) Monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
b) Non-monitor malfunction		
Total	0.00	See FCC CO CEM downtime.
c) QA calibration		
Total	1.00	See FCC CO CEM downtime.
d) Other known causes		
Total	10.00	See FCC CO CEM downtime.
e) Unknown causes		
Total	0.00	See FCC CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) SOX NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Advance Optima (Limas UV) Gas Analyzer

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI2

EMISSION LIMIT AND AVERAGE TIME: 793.65 lbs/hr - 3 hour rolling average

EMISSION UNIT(S): FCC regenerator

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: EQUI164, TREA17

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	10.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	11.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.50%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/hr)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

a) Monitor malfunction

Total	0.00	See FCC SO2 ppm CEM downtime.

b) Non-monitor malfunction

Total	0.00	See FCC SO2 ppm CEM downtime.

c) QA calibration

Total	1.00	See FCC SO2 ppm CEM downtime.

d) Other known causes

Total	10.00	See FCC SO2 ppm CEM downtime.

e) Unknown causes

Total	0.00	See FCC SO2 ppm CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (SOX) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI2

EMISSION UNIT(S): FCC regenerator

ASSOCIATED ITEMS: EQUI164, TREA17

MONITOR
MODEL: Advance Optima (Limas UV) Gas Analyzer

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME:
9.8 lb SOx/1000 lb coke burn - 7 day rolling avg

EMISSION BASIS:
Consent Decree, Appendix I, and NSPS 60.104(b)(2), 60.104(c)

PROCESS UNIT DESCRIPTION: EQUI2 is a fluidized catalytic cracking unit. The materials from the FCC are routed to the FCC column for fractionation.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	10.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	11.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.50%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Lb SOX

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb Sox/ton), hourly average	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC regenerator

POLLUTANT MONITORED: Lb SOX

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

NOTE:
CEM downtime is the same downtime reported on the form for EQUI2 for CO ppm

a) Monitor malfunction

Total	0.00	See FCC NOx or CO CEM downtime.

b) Non-monitor malfunction

Total	0.00	See FCC Nox or CO CEM downtime.

c) QA calibration

Total	1.00	See FCC NOx or CO CEM downtime.

d) Other known causes

Total	10.00	See FCC Nox or CO CEM downtime.

e) Unknown causes

Total	0.00	See FCC NOx or CO CEM downtime.

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI3

EMISSION LIMITS AND AVERAGING TIME:
48.60 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): No. 2 Crude Vacuum Heater
5-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG20, EQUI163, EQUI175, EQUI206, STRU70, COMG20

TOTAL OPERATING HOURS OF EMISSION UNIT:	Total	Fuel Gas	Fuel Oil
	1751	1751	0

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1

POLLUTANT MONITORED: SO2 lb/hr - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): S-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 5-B-1, fuel gas flow meter

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#. #0203 (AI ID 447)

EMISSION UNIT(S): Heater 5-B-1

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR
MODEL: Advance Optima Limas 11
MFR: ABB

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
0.05 lbs/mmbtu - 12 month rolling average
0.14 lbs/mmbtu - 3 hour rolling average

EMISSION SUBJECT ITEM: EQUI4

EMISSION UNIT(S): Heater 2-B-3

EMISSION BASIS:
BACT PSD, 40CFR 52.21, Minn. R. 7007.3000

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI176, EQUI296, STRU15

TOTAL OPERATING HOURS
OF EMISSION UNIT: 1753

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	12 mo	3 hr		
a) Startup/Shutdown	0.00	0.00	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	2.00
e) Unknown causes	0.00	0.00	d) Other known causes	3.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	5.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.29%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: NOx lb/mmbtu (12 month rolling avg) and O2

DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: NOx lb/mmbtu (3 hr rolling avg) and O2

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lbs/mmbtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 2-B-3

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/7/2016 13:00		
11/7/2016 15:00	2:00	Quarterly calibration gas audit.
	2:00	
d) Other known causes		
12/14/2016 12:00		
12/14/2016 15:00	3.00	Preventive maintenance.
	3.00	
e) Unknown causes		
Total	0:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI4

EMISSION LIMITS AND AVERAGING TIME:
34.0 lb SO2/hr - 3 hour rolling average
0.2834 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): No. 2 Crude Charge Heater
2-B-3

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI176, EQUI296, STRU15

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Natural Gas
1753	1753	1753

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Natural Gas
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3

POLLUTANT MONITORED: SO2 lb/hr - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3

POLLUTANT MONITORED: SO2 lb/mmbtu - 3 hour rolling average

DATE/TIME	TOTAL DURATION (HRS)	MAX. EMISSIONS RATE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3, Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 2-B-3, Natural Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0:00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI5

EMISSION LIMITS AND AVERAGING TIME:
1.2 lb SO2/hr - 3 hr rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): No. 1 Crude Vacuum heater
1-B-5

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI178, STRU10

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/hr, 3-hour avg)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION (lb/mmBtu)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 1-B-5, Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA/calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI6

EMISSION LIMIT AND AVERAGE TIME: 52.20 lb SO2/hr - 3 hour rolling average; 0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Crude Charge Heater; Heater 1-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI63, EQUI82, EQUI83, STRU69

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2209	2209	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS) 1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI6

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI6

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 1-B-7

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 1-B-7

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI7

EMISSION LIMITS AND AVERAGING TIME:
1.41 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Distillate Unifiner
29-B-1, 29-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163, EQUI184, STRU68

TOTAL OPERATING HOURS OF EMISSION UNIT: 1928

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 29-B-1, 29-B-2 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

Back to Su

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI8

EMISSION LIMITS AND AVERAGING TIME: 1.95 lb SO2/hr - 3 hr rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Naphtha Unifiner Heater 3-B-1, 3-B-2, 3-B-3

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI185, STRU19

TOTAL OPERATING HOURS OF EMISSION UNIT: 1551

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1, 3-B-2, 3-B-3

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1, 3-B-2, 3-B-3

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-1,2,3 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI9

EMISSION LIMITS AND AVERAGING TIME: 1.95 lb SO2/hr - 3 hour rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Platformer Charge Heater 3-B-4

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI186, STRU67

TOTAL OPERATING HOURS OF EMISSION UNIT: 1751

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00		
b) Control equipment	0.00	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-4 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0:00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI10

EMISSION LIMITS AND AVERAGING TIME:
1.68 lb SO2/hr - 3 hr rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Platformer interheater #1
3-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI187, STRU66

TOTAL OPERATING HOURS OF EMISSION UNIT: 1719

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-7 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0:00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI11

EMISSION LIMITS AND AVERAGING TIME: 1.08 lb SO2/hr - 3 hour rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Platformer Interheater #2; 3-B-8

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI188, STRU65

TOTAL OPERATING HOURS OF EMISSION UNIT: 1742

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-8 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI12

EMISSION LIMIT AND AVERAGE TIME: 0.76 lb SO2/hr - 3 hour rolling average; 0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Desulfurizer Heater; Heater 34-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI189, MR029, STRU64

TOTAL OPERATING HOURS OF EMISSION UNIT: 1788

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/hr	lb/mmtbu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Fuel Gas
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017		No excess emissions.	
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI13

EMISSION LIMIT AND AVERAGE TIME: 76.50 lb SO2/hr - 3 hour rolling average; 0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Hot Oil Heater; Heater 34-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI190, EQUI191, STRU64

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
1896	1896	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 34-B-2

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction:		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2016

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI14

EMISSION UNIT(S): Heater 32-B-1

ASSOCIATED ITEMS:

MONITOR
MFR: ABB
Model: Advance Optima Limas 11

EMISSION LIMIT AND AVERAGE TIME:
0.050 lbs/mmbtu - 365 day rolling average
1st 365-d rolling avg. effective 10/17/08

EMISSION BASIS:
Consent Decree

TOTAL OPERATING HOURS
OF EMISSION UNIT: 1628

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	365 day	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	52.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	53.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	3.26%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1 (EQUI14)

POLLUTANT MONITORED: NOx (365 day rolling avg) and O2

DATE/TIME	DURATION	CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1 (EQUI14)

POLLUTANT MONITORED: NOx and O2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/8/2016 13:00		
11/8/2016 14:00	1:00	Quarterly calibration gas audit
Total	1:00	
d) Other known causes		
10/26/2016 12:00		
10/26/2016 14:00	2.00	Missing data. Data communications issue.
11/29/2016 7:00		
12/1/2016 9:00	50.00	Missing data Data communications issues.
Total	52.00	
e) Unknown causes		
Total	10:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI14

EMISSION LIMIT AND AVERAGE TIME:
2.97 lb SO2/hr - 3 hour rolling average
0.025 lb SO2/mmbtu - 3 hour rolling average
EMISSION BASIS: SIP for SO2 NAAQS (Effective 9-10-2009)

EMISSION UNIT(S): HDH Heater
32-B-1

ASSOCIATED ITEMS:
COMG7, COMG14, EQUI163, EQUI192, STRU63

TOTAL OPERATING HOURS OF EMISSION UNIT: 1628

A. EMISSION DATA SUMMARY			B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)			1 DURATION OF CEM DOWNTIME DURING	
1	lb/hr	lb/mmbtu	SOURCE OPERATION (HRS)	
				Fuel Gas
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 32-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 32-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 32-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI15

EMISSION LIMIT AND AVERAGE TIME:
36.0 lb SO2/hr - 3 hour rolling average
0.90 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Dehex Reboiler Heater
Heater 10-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG14, EQUI163, EQUI193, EQUI194, STRU9

OPERATING HOURS OF EMISSION UNIT:

Total	Fuel Gas	Fuel Oil
2209	2209	0

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Fuel Gas	Fuel Oil
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

NOTES: There was zero fuel oil runtime during the quarter.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
b) Control equipment		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
c) Process problems		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
d) Other known causes		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
e) Unknown causes		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
f) Soot blowing		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
g) Fuel problems		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 10-B-1

POLLUTANT MONITORED: Fuel Oil Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other: SO2 also a surrogate for MACT Subpart UUU HAP Emissions

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Advance Limas 11 SO2 / Magnos 106 - O2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI0000000016

EMISSION LIMIT AND AVERAGE TIME: 250 ppm SO2 - 12 hour rolling average

EMISSION UNIT(S): #2 SRU/SCOT unit

EMISSION BASIS: 40 CFR 60 NSPS Subpart J

ASSOCIATED ITEMS: TREA12, COMG8, EQUI166, EQUI167, STRU81

40 CFR 63.1568 Table 29 Opt 1a MACT Subpart UUU

PROCESS UNIT DESCRIPTION: EQUI16 is a Claus Sulfur Recovery Unit with a Tail Gas Treating Unit. The train includes the SRU Incinerator. The sulfur unit is designed to process 50 LTPD.

TOTAL OPERATING HOURS OF EMISSION UNIT: 1552

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF BYPASS	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00	a) Process Problems	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	c) QA calibration	1.00	c) Unknown causes	0.00
d) Other known causes	0.00	d) Other known causes	0.00		
e) Unknown causes	0.00	e) Unknown causes	0.00	2 TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00			3 PERCENT OF TOTAL OPERATION HOURS	0.00%
g) Fuel problems	0.00				
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	1.00		
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.06%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section.
During excess emission events, a value equal to 1.5x the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (ppm)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (ppm, 12-hr average) and recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
[redacted] 11/8/16 14:00		
11/8/16 15:00	1.00	Quarterly CGA
Total	1.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
SRU BYPASS INFORMATION

REPORTING QUARTER: Fourth, 2016 ACD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: Bypass (Acid gas)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Process problems		
10/1/2016		
1/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Other known causes		
10/1/2016		
1/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Unknown causes		
10/1/2016		
1/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR: Advance Limas 11 SO2

MODEL: Magnos 106 - O2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI16

EMISSION LIMIT AND AVERAGE TIME:
45.0 lb SO2/hr - 1 hour average
15.0 lb SO2/hr - 3 hour rolling average

EMISSION UNIT(S): #2 SRU/SCOT unit

EMISSION BASIS: MN Rule 7009.0020 - AAQS/SIP

ASSOCIATED ITEMS: TREA12, COMG8, EQUI166, EQUI167, STRU14

TOTAL OPERATING HOURS OF EMISSION UNIT: 1552

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	1 hr	3 hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	1.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	1.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.06%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:

lb/hr SO2 CEM downtime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average) and ppm recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: 8020J (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
	0.00		No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #2 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
		SO2 lb/hr downtime same as reported for #2 SRU/SCOT (EU 019) SO2 ppm
a) Monitor malfunction		
Total	0.00	See #2 SCOT ppm page for details
b) Non-monitor malfunction		
Total	0.00	See #2 SCOT ppm page for details
c) QA calibration		
Total	0.00	See #2 SCOT ppm page for details
d) Other known causes		
Total	1.00	See #2 SCOT ppm page for details
e) Unknown causes		
Total	0.00	See #2 SCOT ppm page for details

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE#: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI17

EMISSION LIMITS AND AVERAGING TIME:
1.70 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Guard Case Reactor Heater
36-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI199, STRU62

TOTAL OPERATING HOURS OF EMISSION UNIT: 1864

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-1 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI18

EMISSION LIMITS AND AVERAGING TIME:
2.10 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heater 36-B-2,3,4

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI200, STRU12

TOTAL OPERATING HOURS OF EMISSION UNIT: 1866

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)

	lb/hr	lb/mmbtu
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: see certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-2,3,4 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction:		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI19

EMISSION LIMITS AND AVERAGING TIME:
0.63 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heater 36-B-6E

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI201, STRU80

TOTAL OPERATING HOURS OF EMISSION UNIT: 1884

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6E

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6E

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 3-B-6E Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI20

EMISSION LIMITS AND AVERAGING TIME:
1.05 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heaters
36-B-6W

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG9, COMG7, EQUI163, EQUI202, STRU79

TOTAL OPERATING HOURS OF EMISSION UNIT: 1886

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 36-B-6W **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI21

EMISSION LIMITS AND AVERAGING TIME:
1.38 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Reactor Charge Heater 37-B-1

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA20, TREA21, COMG7, COMG8, EQUI163, EQUI203, STRU89

TOTAL OPERATING HOURS OF EMISSION UNIT: 2198

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-1 Fuel Gas Flow Rate

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

Back to Su

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity (Other: _____)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR: _____

EMISSION SUBJECT ITEM: EQUI26

EMISSION LIMITS AND AVERAGING TIME:
0.78 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Product Stripper Reboiler 37-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA22, TREA23, COMG7, COMG8, EQUI163, EQUI204, STRU88

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/hr	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00	0.00		
g) Fuel problems	0.00	0.00		
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: _____

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE: _____

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2

POLLUTANT MONITORED: SO2 - lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2

POLLUTANT MONITORED: SO2 - lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 37-B-2 **Fuel Gas Flow Rate**

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) Flow

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: COM0000000026, , EQUI24

EMISSION LIMIT AND AVERAGE TIME:
3.48 lb SO2/hr - 3 hour rolling average
0.030 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Hydrogen Plant Heaters 38-B-1, 38-B-2

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: TREA16, TREA11, , EQUI24, EQUI163, EQUI208, EQUI205, EQUI162, STRU87

OPERATING HOURS OF EMISSION UNIT:

Total	NSP Gas	PSA Gas
2209	2209	2198

A. EMISSION DATA SUMMARY

DURATION OF EXCESS EMISSIONS (HRS)

1	lb/mmbtu	lb/hr
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)

	Nat Gas	PSA Gas
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 ADD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: SO2 lb/hr

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: Nat Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 38-B-1, 38-B-2

POLLUTANT MONITORED: PSA Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (TOC)

REPORTING QUARTER: Fourth, 2016

MONITOR
MODEL: Polytron IR Ex HC
MFR: Drager, Inc.

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:
10 mg TOC/liter of gasoline loaded (6 hour avg)
0.74% - CEM limit established by stack test as surrogate for 10 mg/L

EMISSION SUBJECT ITEM: EQUI0000000028

EMISSION UNIT(S): Light oil loadrack
Vapor Recovery Unit

EMISSION BASIS:
40 CFR 63.422(b) NESHAP Subpart CC

ASSOCIATED ITEMS: TREA18, TREA25, EQUI168, STRU31, STRU016

TOTAL OPERATING HOURS OF EMISSION UNIT: 2185

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack VRU

POLLUTANT MONITORED: TOC

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack VRU

POLLUTANT MONITORED: TOC

DATE/TIME	TOTAL	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temperature)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Thermocouple

FACILITY: St. Paul Park Refining Co. LLC

MFR: NA

EMISSION SUBJECT ITEM: COM0000000028
Unit Startup - 8/6/08

EMISSION LIMIT AND AVERAGE TIME: > 215°F - 3 hour rolling average

EMISSION BASIS: Title V Permit

EMISSION UNIT(S): Light oil loadrack
Permanent Vapor Combustor Unit (PVCU)

ASSOCIATED ITEMS: TREA26, EQUI28, EQUI41, STRU32

TOTAL OPERATING HOURS OF EMISSION UNIT: 25

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack Process Vapor Burner (F

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN.TEMPERATURE	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Light oil loadrack - PVB

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0:00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0:00	

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) (NOx) CO CO2 O2 TRS H2S HCL Opacity Other

Other: This report addresses Flare SARA reportable emissions, pilot monitoring, pilot flame outages, and SO2 monitoring.

REPORTING QUARTER: Fourth, 2016

MONITOR
MODEL SOLA II Dual Range
MFR: Thermo Scientific

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME:

EMISSION SUBJECT ITEM: TREA13

EMISSION UNIT(S):
TREA13 Refinery flare stack

EMISSION BASIS:
40 CFR 63 NESHAP Subpart CC, Subpart Ja

ASSOCIATED ITEMS: FUGI73

TOTAL OPERATING HOURS
OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY (Scanner)		C. CEM PERFORMANCE SUMMARY			
1 DURATION OF SARA REPORTABLE EMISSIONS (HRS)	SO2	NOx	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		DURATION OF PILOT DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00	a) Monitor malfunction	0.00	a) Pilot malfunction	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00	c) QA calibration	3.00	c) Unknown causes	0.00
d) Other known causes	0.00	0.00	d) Other known causes	2.37	d) Other known causes	19.00		
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00	e) Unknown causes	0.00	TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00	0.00					PERCENT OF TOTAL	
g) Fuel problems	0.00	0.00	2 TOTAL DURATION (HRS)	2.37	2 TOTAL DURATION (HRS)	22.00	PILOT DOWNTIME	0.00%
2 TOTAL DURATION (HRS)	0.00	0.00	3 PERCENT OF TOTAL		3 PERCENT OF TOTAL			
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	CEM DOWNTIME	0.11%	CEM DOWNTIME	1.00%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of SARA Reportable Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

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SUBMITTED BY: See certification page at front of report DATE:

SARA Reportable Emissions Report - SO2 (i.e., > 500 lbs)

REPORTING QUARTER: Fourth, 2016

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	APPROX. SO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			
Total	0.00		

SARA Reportable Emissions Report - NO2 (i.e., > 1000 lbs)

REPORTING QUARTER: Fourth, 2016

AQD FILE #: 80203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: NA

DATE/TIME	TOTAL DURATION (HRS)	APPROX. NO2 EMITTED (LBS)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016

AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
12/7/2016 13:00		
12/7/2016 16:00	3.00	Quarterly calibration gas audit.
Total	3.00	
d) Other known causes		
11/2/2016 10:00		
11/2/2016 12:00	2.00	Preventive maintenance.
12/28/16 10:00		
12/28/16 16:00	6.00	Preventive maintenance on sampling system and pyrolyzer rebuild.
12/28/16 21:00		
12/29/16 8:00	11.00	Maintenance. Replaced pyrolyzer coil.
Total	19.00	
e) Unknown causes		
Total	0.00	

FLARE SCANNER
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016

AOD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
10/9/2016 3:26		
10/9/2016 3:37	0.18	IR camera data acquisition error but at least one thermocouple greater than 1000 degrees indicates flame
10/9/2016 4:55		
10/9/2016 5:16	0.35	IR camera data acquisition error but at least one thermocouple greater than 1000 degrees indicates flame
10/9/2016 5:45		
10/9/2016 7:33	1.80	IR camera data acquisition error but at least one thermocouple greater than 1000 degrees indicates flame
11/27/2016 8:25		
11/27/2016 8:27	0.03	IR camera data acquisition error but at least one thermocouple greater than 1000 degrees indicates flame
Total	2.37	
e) Unknown causes		
Total	0.00	

FLARE PILOT
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016

ADD FILE #: 10203 (AI ID 447)

EMISSION UNIT(S): TREA0000000013

POLLUTANT MONITORED: Flame Presence (Non-Pollutant)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Pilot malfunction		
10/1/2016		
1/1/2017		
Total	0.00	
b) Other known causes		
10/1/2016		
1/1/2017		
Total	0.00	
c) Unknown causes		
10/1/2016		
1/1/2017		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity
Other: (Temp)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: 002A GC

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME:
150 ppm H2S - 365 day rolling average
> 1400 DEGF - 3 hour rolling average

EMISSION SUBJECT ITEM: TREA5

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer (SBC Vent Gas / TO Temperature)

EMISSION BASIS:
40 CFR 52.21
MN Rule 7007.0800, Subp. 2

ASSOCIATED ITEMS: EQUI209, STRU22, SV065

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY		
1 DURATION OF EXCESS EMISSIONS (HRS)	H2S	Temperature	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	H2S	Temperature
a) Startup/Shutdown	0.00	0.00	a) Monitor malfunction	0.00	0.00
b) Control equipment	0.00	0.00	b) Non-monitor malfunction	0.00	0.00
c) Process problems	0.00	0.00	c) QA calibration	0.00	0.00
d) Other known causes	0.00	0.00	d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00	e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00			
g) Fuel problems	0.00	0.00			
2 TOTAL DURATION (HRS)	0.00	0.00	2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: SPPRC's SBC's were converted to an activated sludge aerator system in June 2014. SBC's are no longer in-use.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (150 ppm, 366 day average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

a) Monitor malfunction

Total	0.00

b) Non-monitor malfunction

Total	0.00

c) QA calibration

Total	0.00

d) Other known causes

Total	0.00

e) Unknown causes

Total	0.00

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temp)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Thermocouple

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: COMG13

EMISSION LIMIT AND AVERAGE TIME: > 1400 DEGF - 3 hour rolling average

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer (N_2 Vent Gas / TO Temperature)

EMISSION BASIS: 40 CFR 61.349(a)(2); MN Rule 7011.9930, Sub.E

ASSOCIATED ITEMS: TREA5, EQUI209, STRU22, SV065

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)	**Temperature**	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	**Temperature**
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average) CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
b) Control equipment		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
c) Process problems		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
d) Other known causes		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
e) Unknown causes		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
f) Soot blowing		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	
g) Fuel problems		
10/1/2016		
1/1/2017		No excess emissions.
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): W.W.T.P. Thermal Oxidizer

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE # 80203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity

Other: SO2 also a surrogate for MACT Subpart UUU HAP Emissions

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Advance Optima, Limas 11, HDUV

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI33

EMISSION LIMIT AND AVERAGE TIME: 250 ppmd, O2 free - 12 hour rolling average

EMISSION UNIT(S): #3 SRU/SCOT unit
Unit Startup - 11/16/2004, CEM Startup 11/16/04

EMISSION BASIS: 40 CFR 60 NSPS Subpart J
40 CFR 63.1568 Table 29 Opt 1a MACT Subpart UUU

ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQUI210, EQUI211, STRU6

PROCESS UNIT DESCRIPTIO: EU0083 is a 4-Stage Claus Sulfur Recovery Unit with a tail Gas Treating Unit. The train includes the SRU incinerator. The sulfur unit is designed to process 50 LTPD.

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY		C. SRU BYPASS INFORMATION	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)		1 DURATION OF BYPASS	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00	a) Process Problems	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00	b) Other known causes	0.00
c) Process problems	0.00	c) QA calibration	2.00	c) Unknown causes	0.00
d) Other known causes	0.00	d) Other known causes	1.00		
e) Unknown causes	0.00	e) Unknown causes	0.00	2 TOTAL DURATION (HRS)	0.00
f) Soot blowing	0.00			3 PERCENT OF TOTAL OPERATION HOURS	0.00%
g) Fuel problems	0.00				
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	3.00		
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.14%		

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: Actual monitored values are noted in this section.
During excess emission events, a value equal to 1.5 times the high calibration gas concentration is used to replace any analyzer readings over that value since measured data points are not verifiable or accurate when at least 50% greater than the high calibration gas concentration.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (ppm)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONC. (ppm, 12-hr average) Actual	Recalc	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown				
10/1/2016				
1/1/2017				No excess emissions.
Total	0.00			
b) Control equipment				
10/1/2016				
1/1/2017				No excess emissions.
Total	0.00			
c) Process problems				
10/1/2016				
1/1/2017				
	0.00			No excess emissions.
Total	0.00			
d) Other known causes				
10/1/2016				
1/1/2017				No excess emissions.
Total	0.00			
e) Unknown causes				
10/1/2016				
1/1/2017				No excess emissions.
Total	0.00			
f) Soot blowing				
10/1/2016				
1/1/2017				No excess emissions.
Total	0.00			
g) Fuel problems				
10/1/2016				
1/1/2017				No excess emissions.
Total	0.00			

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/7/16 13:00		
11/7/16 15:00	2.00	Quarterly calibration gas audit.
Total	2.00	
d) Other known causes		
11/17/2016 13:00		
11/17/2016 14:00	1.00	Preventive maintenance.
Total	1.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
SRU Bypass Information

REPORTING QUARTER: Fourth, 2016 AQD FILE # #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: Bypass (Acid gas)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Process problems		
10/1/2016		
1/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Other known causes		
10/1/2016		
1/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	
b) Unknown causes		
10/1/2016		
1/1/2017		No bypasses that resulted in excess emissions.
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): (SO2) NOx CO CO2 (O2) TRS H2S HCL Opacity
Other: _____

REPORTING QUARTER: Fourth, 2016

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI33

EMISSION UNIT(S): #3 SRU/SCOT unit
Unit Startup - 11/16/2004

ASSOCIATED ITEMS: TREA4, COMG7, EQUI163, EQUI296, EQUI210, EQUI211, STRU6

MONITOR
MODEL: Advance Optima, Limas 11, NDUV

MFR: ABB

EMISSION LIMIT AND AVERAGE TIME:
45.0 lb SO2/hr - 1 hour average
15.0 lb SO2/hr - 3 hour rolling average

EMISSION BASIS: MN Rule 7009.0020 - AAQS/SIP

TOTAL OPERATING HOURS
OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY

	1 hr	3-hr
1 DURATION OF EXCESS EMISSIONS (HRS)		
a) Startup/Shutdown	0.00	0.00
b) Control equipment	0.00	0.00
c) Process problems	0.00	0.00
d) Other known causes	0.00	0.00
e) Unknown causes	0.00	0.00
f) Soot blowing	0.00	0.00
g) Fuel problems	0.00	0.00
2 TOTAL DURATION (HRS)	0.00	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	0.00%

B. CEM PERFORMANCE SUMMARY

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Monitor malfunction	0.00
b) Non-monitor malfunction	0.00
c) QA calibration	2.00
d) Other known causes	1.00
e) Unknown causes	0.00
2 TOTAL DURATION (HRS)	3.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.14%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTE:
#3 SRU/SCOT lb SO2/hr CEM downtime is the same as reported for #3 SRU/SCOT SO2 ppm.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE: _____

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr) - 45 lb/hr, 1-hr average

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 1-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr) - 15 lb/hr, 3-hr average

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCEN. (lbs/hr, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): #3 SRU/SCOT unit

POLLUTANT MONITORED: SO2 (lbs/hr)

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
	NOTE: SO2 lb/hr downtime same as reported for #3 SRU/SCOT SO2 ppm	
a) Monitor malfunction		
Total	0.00	See #3 SCOT ppm page for details
b) Non-monitor malfunction		
Total	0.00	See #3 SCOT ppm page for details
c) QA calibration		
Total	2.00	See #3 SCOT ppm page for details
d) Other known causes		
Total	1.00	See #3 SCOT ppm page for details
e) Unknown causes		
Total	0.00	See #3 SCOT ppm page for details

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: Temperature

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: NA

MFR: NA

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EU 088
Unit Startup - 10/20/2008

EMISSION LIMIT AND AVERAGE TIME: > 550 Deg F - 3 hour rolling average

EMISSION UNIT(S): NP VEPR Phase 1

EMISSION BASIS: Title V Permit
MN R. 7007.0800

ASSOCIATED ITEMS: TREA10, TREA7, STRU25

TOTAL OPERATING HOURS OF EMISSION UNIT: 0

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 1

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 1

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
Other: (Temperature)

REPORTING QUARTER: Fourth, 2016

FACILITY: St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EU 089

EMISSION UNIT(S): NP VEPR Phase 2

ASSOCIATED ITEMS: TREA6, TREA8, STRU29

MONITOR MODEL: NA

MFR: NA

EMISSION LIMIT AND AVERAGE TIME: > 550 Deg F - 3 hour rolling average

EMISSION BASIS: Title V Permit
MN R. 7007.0800

TOTAL OPERATING HOURS OF EMISSION UNIT: 133

A. EMISSION DATA SUMMARY		B. CEM PERFORMANCE SUMMARY	
1 DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 2

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	MIN. TEMP. (°F, 3-hr average)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): NP VEPR Phase 2

POLLUTANT MONITORED: Temperature

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Syscon/Uras 26 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI42

EMISSION LIMIT AND AVERAGE TIME: 0.20 lb/mmbtu - 30 Day rolling average

EMISSION UNIT(S): Boiler 7; Boiler 16-B-7

EMISSION BASIS: NSPS Db

ASSOCIATED ITEMS: COMG27 (Boilers 7&8), EQUI0212, EQUI214, STRU44

OPERATING HOURS OF EMISSION UNIT: 2177

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)		1 DURATION OF CEM DOWNTIME DURING	
1	lb/mmbtu (30 Day)	SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00		
b) Control equipment	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	c) QA calibration	1.00
e) Unknown causes	0.00	d) Other known causes	2.00
f) Soot blowing	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	3.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.14%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-7

POLLUTANT MONITORED: NOx (lbs/mmbtu)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/8/16 13:00		
11/8/16 14:00	1.00	Quarterly calibration gas audit.
Total	1.00	
d) Other known causes		
11/1/2016 14:00		
11/1/2016 16:00	2.00	Preventive maintenance.
Total	2.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other:) FLOW

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI42

EMISSION LIMIT AND AVERAGE TIME: 0.025 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Boiler 7
Boiler 16-B-7

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG27, EQUI163, STRU44

OPERATING HOURS OF EMISSION UNIT: 2177

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-7

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity
Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Syscon/Uras 26 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI43

EMISSION LIMIT AND AVERAGE TIME: 0.20 lb/mmbtu - 30 Day rolling average

EMISSION UNIT(S): Boiler 8; Boiler 16-B-8

EMISSION BASIS: NSPS Db

ASSOCIATED ITEMS: COMG27 (Boilers 7&8), EQUI215, EQUI217, STRU45

OPERATING HOURS OF EMISSION UNIT: 1955

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu (30-Day)	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
1 a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	2.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	3.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.15%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE#: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-8

POLLUTANT MONITORED: NOx (lbs/mmbtu)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/8/16 13:00		
11/8/16 14:00	1:00	Quarterly calibration gas audit.
Total	1:00	
d) Other known causes		
11/1/2016 14:00		
11/1/2016 16:00	2.00	Preventive maintenance.
Total	2.00	
e) Unknown causes		
Total	0:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: FLOW)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Fuel Gas Flow Rate/FG H2S CEM

FACILITY: St. Paul Park Refining Co. LLC

MFR:

EMISSION SUBJECT ITEM: EQUI43

EMISSION LIMIT AND AVERAGE TIME: 0.025 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): Boiler 8
Boiler 16-B-8

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, COMG27, EQUI163, STRU44

OPERATING HOURS OF EMISSION UNIT: 1955

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	0.00
d) Other known causes	0.00	d) Other known causes	0.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Boiler 16-B-8

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: ABB Limas11 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: EQUI44

EMISSION LIMIT AND AVERAGE TIME: 40 ppmvd at 0% O2

EMISSION UNIT(S): FCC Charge Heater (8-B-1); Unit Startup - 5/7/2012

EMISSION BASIS: NSPS Ja

ASSOCIATED ITEMS: COMG7, EQUI163, MR070, MR071, STRU34

NOTE: New MR numbers MR070 and MR071 have been selected for the new 8-B-1 heater. These numbers are not yet entered into the Title V permit.

OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
DURATION OF EXCESS EMISSIONS (HRS)	ppmvd (30-Day)	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
1 a) Startup/Shutdown	0.00	a) Monitor malfunction	0.00
b) Control equipment	0.00	b) Non-monitor malfunction	0.00
c) Process problems	0.00	c) QA calibration	1.00
d) Other known causes	0.00	d) Other known causes	4.00
e) Unknown causes	0.00	e) Unknown causes	0.00
f) Soot blowing	0.00		
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	5.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.23%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC Charge Heater (8-B-1)

POLLUTANT MONITORED: NOx (ppmvd @ 0% O2)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): FCC Charge Heater (8-B-1)

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/10/2016 13:00		
11/10/2016 14:00	1.00	Quaterly calibration gas audit.
Total	1.00	
d) Other known causes		
10/20/2016 9:00		
10/20/2016 10:00	1.00	Missing data.
12/6/2016 13:00		
12/6/2016 16:00	3.00	Preventative maintenance.
Total	4.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: FLOW)

REPORTING QUARTER: Fourth, 2016

MONITOR
MODEL: MR074 (fuel gas); MR 075 (pilot gas)
MFR: Honeywell (fuel gas)

FACILITY:
St. Paul Park Refining Co. LLC

EMISSION SUBJECT ITEM: EQUI44

EMISSION LIMIT AND AVERAGE TIME:
1.75 lb SO2/mmbtu - 3 hour rolling average

EMISSION UNIT(S): FCC Charge Heater (8-B-1)
Unit Startup - 5/7/2012

EMISSION BASIS: SIP for SO2 NAAQS

ASSOCIATED ITEMS: COMG7, EQUI163
STRU34

NOTE: New MR numbers MR074 and MR075 have been selected for the new 8-B-1 heater fuel gas and pilot flow meters. These numbers are not yet entered into the Title V permit.

OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	lb/mmbtu	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Fuel Gas
a) Startup/Shutdown	0.00		
b) Control equipment	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%
FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.			

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): EQUI44

POLLUTANT MONITORED: SO2 lb/mmbtu

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): Heater 8-B-1 (EQUI44)

POLLUTANT MONITORED: Fuel Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0:00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
Total	0:00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
Total	0:00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx (CO) CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Syscon/Uras 26 - CO; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: COMG27

EMISSION LIMIT AND AVERAGE TIME: 95 Tons Per Year - 12 month rolling sum (for Boilers 7 & 8 combined as GP 032)

EMISSION UNIT(S): COMG27 Boilers 16-B-7 and 16-B-8

EMISSION BASIS: TV Air Permit - Limit to avoid NSR 40 CFR 52.21, Minn.R.7007.3000

ASSOCIATED ITEMS: EQUI42, EQUI43, EQUI213, EQUI214, EQUI216, EQUI217, STRU44, STRU45

OPERATING HOURS OF EMISSION UNIT:	Boiler 7	Boiler 8
	2177	1955

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	Ton/Year
a) Startup/Shutdown	0.00
b) Control equipment	0.00
c) Process problems	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
f) Soot blowing	0.00
g) Fuel problems	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Boiler 7	Boiler 8
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	1.00	1.00
d) Other known causes	2.00	2.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	3.00	3.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.14%	0.15%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: CEMS downtime for the GP 032 combined emission limit is reported if individually or for both CEMS for Boiler 7 and Boiler 8 are down. These pages are applicable only for the combined CO limit.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP 032 - 16-B-7 and 16-B-8

POLLUTANT MONITORED: CO Ton/Year

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: CO

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/8/16 13:00		
11/8/16 14:00	1.00	Quarterly calibration gas audit.
Total	1.00	
d) Other known causes		
11/1/2016 14:00		
11/1/2016 16:00	2.00	Preventive maintenance.
Total	2.00	
e) Unknown causes		
Total	0.00	

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #. #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: CO

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
11/8/16 13:00		
11/8/16 14:00	1.00	Quarterly calibration gas audit.
Total	1.00	
d) Other known causes		
11/1/2016 14:00		
11/1/2016 16:00	2.00	Preventive maintenance.
Total	2.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 (NOx) CO CO2 (O2) TRS H2S HCL Opacity

Other:

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: Syscon/Uras 26 - NOx; Magnos 206 - O_2

FACILITY: St. Paul Park Refining Co. LLC

MFR: ABB

EMISSION SUBJECT ITEM: COMG27

EMISSION LIMIT AND AVERAGE TIME: 38 Tons Per Year - 12 month rolling sum (for Boilers 7 & 8 combined as GP 032)

EMISSION UNIT(S): COMG27 Boilers 16-B-7 and 16-B-8

EMISSION BASIS: TV Air Permit - Limit to avoid NSR 40 CFR 52.21, Minn.R.7007.3000

ASSOCIATED ITEMS: EQUI42, EQUI43, EQUI212, EQUI214, EQUI215, EQUI217, STRU44, STRU45

OPERATING HOURS OF EMISSION UNIT:	Boiler 7	Boiler 8
	2177	1955

A. EMISSION DATA SUMMARY

1 DURATION OF EXCESS EMISSIONS (HRS)	ton/yr
a) Startup/Shutdown	0.00
b) Control equipment	0.00
c) Process problems	0.00
d) Other known causes	0.00
e) Unknown causes	0.00
f) Soot blowing	0.00
g) Fuel problems	0.00
2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%

B. CEM Performance Summary

1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	Boiler 7	Boiler 8
a) Monitor malfunction	0.00	0.00
b) Non-monitor malfunction	0.00	0.00
c) QA calibration	1.00	1.00
d) Other known causes	2.00	2.00
e) Unknown causes	0.00	0.00
2 TOTAL DURATION (HRS)	3.00	3.00
3 PERCENT OF TOTAL CEM DOWNTIME	0.14%	0.15%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES: CEMS downtime for the GP 032 combined emission limit is reported if individually or for both CEMS for Boiler 7 and Boiler 8 are down. These pages are applicable only for the combined NOx limit.

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): GP 032 - 16-B-7 and 16-B-8

POLLUTANT MONITORED: NOx (Tons/Year)

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-7

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

Note: NOx CEM downtime is the same downtime reported on the form for Boiler 7 for NOx ppm

a) Monitor malfunction

[redacted]

Total 0.00

b) Non-monitor malfunction

Total 0.00

c) QA calibration

[redacted]

11/8/16 13:00
11/8/16 14:00 1:00 Quarterly calibration gas audit

Total 1:00

d) Other known causes

11/1/2016 14:00
11/1/2016 16:00 2.00 Preventive maintenance.

Total 2.00

e) Unknown causes

[redacted]

Total 0:00

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): 16-B-8

POLLUTANT MONITORED: NOx

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION

Note: NOx CEM downtime is the same downtime reported on the form for Boiler 8 for NOx ppm

a) Monitor malfunction

Total 0.00

b) Non-monitor malfunction

Total 0.00

c) QA calibration

11/8/16 13:00
11/8/16 14:00 1.00 Quarterly calibration gas audit.

Total 1.00

d) Other known causes

11/1/2016 14:00
11/1/2016 16:00 2.00 Preventive maintenance.

Total 2.00

e) Unknown causes

Total 0.00

AQD FILE #:

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS (H2S) HCL Opacity

Other: This report addresses Flare H2S emissions.

REPORTING QUARTER: Fourth, 2016

MONITOR
MODEL: Maxum II
MFR: Siemens, Serial No. 001060

FACILITY: St. Paul Park Refining Co. LLC

EMISSION LIMIT AND AVERAGE TIME: 162 ppm (3-hour rolling average)

EMISSION SUBJECT ITEM: TREA13

EMISSION UNIT(S): TREA13 Refinery flare stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart Ja

ASSOCIATED ITEMS: FUGI73

TOTAL OPERATING HOURS OF EMISSION UNIT: 2209

A. EMISSION DATA SUMMARY			B. CEM PERFORMANCE SUMMARY		
1 DURATION OF EXCESS EMISSIONS			1 DURATION OF CEM DOWNTIME		
EMISSIONS (HRS)	H2S		DURING SOURCE OPERATION (HRS)		
a) Startup/Shutdown	3.00		a) Monitor malfunction	0.00	
b) Control equipment	0.00		b) Non-monitor malfunction	0.00	
c) Process problems	0.00		c) QA calibration	2.00	
d) Other known causes	6.00		d) Other known causes	108.00	
e) Unknown causes	3.00		e) Unknown causes	0.00	
f) Soot blowing	0.00				
g) Fuel problems	0.00		2 TOTAL DURATION (HRS)	110.00	
2 TOTAL DURATION (HRS)	12		3 PERCENT OF TOTAL		
3 PERCENT OF TOTAL			CEM DOWNTIME	4.98%	
EXCESS EMISSIONS	0.54%				

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of SARA Reportable Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

SARA Reportable Emissions Report - H2S (i.e., > 162 ppm)

REPORTING QUARTER: Fourth, 2016

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: NA

DATE/TIME	TOTAL DURATION (HRS)	MAX CONCENTRATION (ppm, 3-hour rolling avg.)	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
11/19/2016 11:00			
11/19/2016 14:00	3	236	Please see Incident E in the report summary.
Total	3.00		
b) Control equipment			
10/1/2016			
1/1/2017			
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			
Total	0.00		
d) Other known causes			
11/4/2016 0:00			
11/4/2016 3:00	3	667	Please see Incident C in the report summary.
12/18/2016 5:00			
12/18/2016 8:00	3	627	Please see Incident G in the report summary.
Total	6.00		
e) Unknown causes			
11/23/2016 11:00			
11/23/2016 14:00	3	231	Please see Incident F in the report summary.
Total	3.00		
f) Soot blowing			
10/1/2016			
1/1/2017			
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016

AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: H2S

DATE/TIME	TOTAL DURATION (HRS)	CORRECTIVE ACTION
a) Monitor malfunction		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
12/6/2016 10:00		
12/6/2016 12:00	2.00	Quarterly calibration gas audit.
Total	2.00	
d) Other known causes		
10/1/2016 13:00		
10/1/2016 14:00	1.00	Missing data during instrumentation troubleshooting.
10/4/2016 15:00		
10/5/2016 9:00	18.00	Failed morning calibration. Analyzer recalibrated followed by validation.
10/6/2016 10:00		
10/6/16 16:00	6.00	Preventive maintenance.
10/17/16 10:00		
10/17/16 19:00	9.00	Maintenance completed on BTU App that affected H2S analyzer.
12/10/16 17:00		
12/11/16 8:00	15.00	Invalid moisture data.
12/12/16 2:00		
12/14/16 7:00	53.00	Invalid moisture data.
12/28/2016 10:00		
12/28/2016 16:00	6.00	Preventive maintenance on sample system.
Total	108.00	
e) Unknown causes		
Total	0.00	

MINNESOTA POLLUTION CONTROL AGENCY

AQD FILE #: #0203 (AI ID 447)

EXCESS EMISSION AND CEM REPORTING FORM

POLLUTANT (circle one): SO2 NOx CO CO2 O2 TRS H2S HCL Opacity
(Other: Flow)

REPORTING QUARTER: Fourth, 2016

MONITOR MODEL: DigitalFlow GF868

FACILITY: St. Paul Park Refining Co. LLC

MFR: General Electric

EMISSION SUBJECT ITEM: TREA13

WORK PRACTICE STANDARD AND AVERAGE TIME: 1.16 MMSCF/24-hr Rolling Avg.

EMISSION UNIT(S): TREA13 Refinery flare stack

EMISSION BASIS: 40 CFR 63 NESHAP Subpart Ja

ASSOCIATED ITEMS: FUGI73

OPERATING HOURS OF EMISSION UNIT: Total 2209

A. EMISSION DATA SUMMARY		B. CEM Performance Summary	
1 DURATION OF EXCESS EMISSIONS (HRS)	MMSCF/24-hr	1 DURATION OF CEM DOWNTIME DURING SOURCE OPERATION (HRS)	
a) Startup/Shutdown	0.00		
b) Control equipment	0.00	a) Monitor malfunction	0.00
c) Process problems	0.00	b) Non-monitor malfunction	0.00
d) Other known causes	0.00	c) QA calibration	0.00
e) Unknown causes	0.00	d) Other known causes	0.00
f) Soot blowing	0.00	e) Unknown causes	0.00
g) Fuel problems	0.00		
2 TOTAL DURATION (HRS)	0.00	2 TOTAL DURATION (HRS)	0.00
3 PERCENT OF TOTAL EXCESS EMISSIONS	0.00%	3 PERCENT OF TOTAL CEM DOWNTIME	0.00%

FOR OPACITY, RECORD ALL TIMES IN MINUTES. FOR GASES, RECORD ALL TIMES IN HOURS.

% Total Excess Emissions = Total Duration of Excess Emissions / (Total Operating Time - CEM Downtime)

% Total CEM Downtime = CEM Downtime / Total Operating Time

NOTES:

If no exceedances: I certify that the required analyses were made, that I am familiar with the results, and that to the best of my knowledge there were no exceedances during the reporting period. I certify that I am familiar with the information in this report and that to the best of my knowledge the information is valid.

SUBMITTED BY: See certification page at front of report DATE:

CONTINUOUS EMISSION MONITOR
EXCESS EMISSION REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: MMBTU/24-hr Rolling Avg.

DATE/TIME	TOTAL DURATION (HRS)	MAX. CONCENTRATION	CAUSE/CORRECTIVE ACTION
a) Startup/Shutdown			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
b) Control equipment			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
c) Process problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
d) Other known causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
e) Unknown causes			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
f) Soot blowing			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		
g) Fuel problems			
10/1/2016			
1/1/2017			No excess emissions.
Total	0.00		

CONTINUOUS EMISSION MONITOR
DOWNTIME REPORT

REPORTING QUARTER: Fourth, 2016 AQD FILE #: #0203 (AI ID 447)

EMISSION UNIT(S): TREA13 Refinery flare stack

POLLUTANT MONITORED: Flare Vent Gas Flow Rate

DATE/TIME	TOTAL DURATION (HRS)	CAUSE/CORRECTIVE ACTION
a) Monitor malfunction		
[redacted]		
Total	0.00	
b) Non-monitor malfunction		
Total	0.00	
c) QA calibration		
[redacted]		
Total	0.00	
d) Other known causes		
Total	0.00	
e) Unknown causes		
[redacted]		
Total	0.00	